AVIATION

The Oldest American Aeronautical Magazine

JUNE 29, 1925 Issued Weekly PRICE 10 CENTS

The start of the Second Gordon Bennett Cup Race

VOLUME XVIII

NUMBER 26

SPECIAL FEATURES

AMUNDSEN RETURNS

THE SECOND MILLER FIELD MEET

MACMILLAN-NAVY EXPEDITION SAILS FOR ARCTIC

GARDNER PUBLISHING CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

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JUNE 29, 1925

AVIATION

VOL. XVIII. NO. 26

Published every Monday

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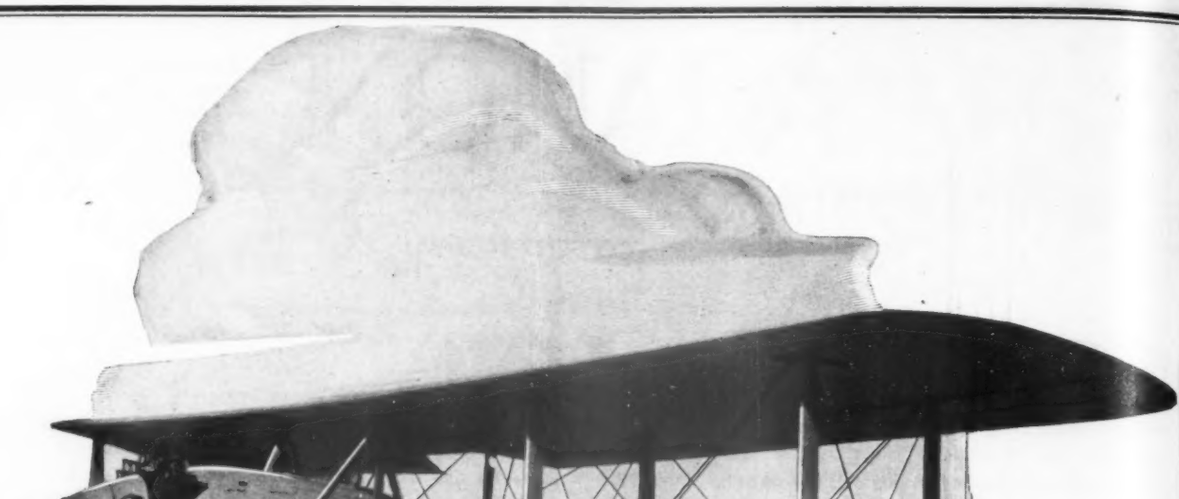

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Send for Bulletin No. 8-A for general information and technical specifications and consult us for cooperation in working out the details of aeronautical projects.

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Amundsen

THE return of Roald Amundsen and party from the neighborhood of the North Pole is one of the finest examples of courage in the records of aeronautical history. His dash to the Pole was in an entirely different class from the Navy-MacMillan expedition. He wished to demonstrate the practicability of aircraft in the Arctic and to be the first to fly to the North Pole. He and his crews set out over territory that contained no aid whatsoever in case of accident.

The return in one of the two planes that started shows that airplanes can be flown in the Arctic without any insuperable difficulty. His failure to bring back both planes shows that ground organization is as essential in the Arctic as elsewhere. Amundsen has always been an advocate of the value of the Arctic as an air route. In his account of the flight, he states that the water lane in which they alighted was the first sighted and landings on the ice would have meant disaster. This shows that the establishing of an airway across the Arctic will be an exceedingly precarious undertaking for heavier-than-aircraft.

The success of the expedition has been a great stimulus to aviation. It has aroused the world's interest more completely than any other event since the Round the World Flight. The frequent assertions of faith in airplanes by members of the expedition have not failed to impress the lay mind. Now that the party has returned safely by air, it is evident that the difficulties experienced were due to the unfavorable terrain and unusual conditions of navigation, rather than to any inherent defects in the airplane.

The announcement of Amundsen's safe arrival has relieved the MacMillan expedition of one of its objectives. Now that it has been demonstrated that polar flight is possible, the American fliers headed by Commander Byrd will probably attempt to make the voyage to the Pole by air the culminating achievement of their trip. We are not convinced that the results to be achieved are worth the risks to be surmounted except as they will demonstrate the daring of our naval pilots and the excellence of our aircraft.

Selling on Performance

SINCE the days of Montgolfier many aviators have considered hot air essential to aviation. While there appears to be a certain charm to flamboyant exaggeration in aeronautical predictions and it has not been employed alone in the promotion of aerial projects there comes a time when facts are more valuable than exaggeration. Each year there is an increasing number of aircraft sold for commercial purposes and it would be highly advantageous to the constructors of these machines, that is, of the good ones, if there could be some official test made of the performance of new types. Rate of climb, high speed and landing speed should be among the most important factors in the sale of a new machine but with no official tests of a plane the prospective purchaser is naturally skeptical of the accuracy of the performance claimed. He either does not believe them at all or the smoothest talker convinces him. No one should purchase a plane on performance alone, but if the performance figures were actually known and verified it would be a help to the seller as well as to the purchaser.

To get sufficiently accurate performance figures is not extremely difficult, but it must be done in some standard way and by impartial judges. The N.A.A. at its last meeting announced that it was ready to make official performance tests, although the exact charge for this service does not seem to have been worked out. The N.A.A. represents the F.A.I., an international body whose function it is to homologate records. It also has representatives in almost every state and it should be able to handle this work if it is desired as efficiently and as impartially as any other organization.

Diplomatic Air Transport

THE recent use by M. Painleve, the French Premier, of airplanes to fly to the Riffian front in Morocco and return, is highly significant. The safety of a high government official is of great importance to the state. The death of such an official as a Premier, temporarily disorganizes the government. The employment of air transportation by such an official indicates that it has the full confidence of the government.

Another important aspect of the incident is that M. Painleve would probably have been unable to visit this front had he not employed the fastest known means of travel. If he had been compelled to spend about two weeks in transit, he probably would have stayed at his post in France and sent some member of his cabinet to study the situation for him.

He flew more than 6,000 miles in eight days. In between flights he managed to inspect thoroughly the French lines, confer with Marshal Lyautey and members of his staff, and attend a reception given by the Sultan Moulay Youssef at Fez. Everywhere he stopped and reviewed troops, awarded decorations and visited the wounded. His zeal and tireless energy seemed indefatigable.

On his way home he flew across the Mediterranean, and made several stops in Spain, where he did much to cement cordial relations between the two countries.

This usage deserves to be emulated, not only by government officials but by business executives. There are many situations where second hand information is insufficient. In such cases, the responsible person must obtain first hand information on the spot. While he is studying one situation, his usual duties are neglected. The airplane reduces the time away from headquarters to a minimum.

The Second Miller Field Meet

The New York National Guard Squadron Holds a Very Successful Air Meet at Miller Field

The 27th Division Air Service held its Second Annual Air Meet at Miller Field on June 20. With the experience of last year's fine meet behind them and with the aid of the most skillful publicity available, they were able to put over an air meet that was a success in every department. There were more ships on the field than have been gathered together on one field since the war in this part of the country. Despite the poor transportation facilities to the field, there was a crowd of well over 35,000 people on and around the field.

The program started promptly on time at 11.00 a. m. and every event was run off as scheduled until after 6.00 p. m. This was facilitated by the use of a Western Electric Public Address system which not only kept the public informed on events but permitted the officials to speed up the procedure by paging individuals, announcing starts, etc. The police arrangements were excellent and the field and the line of ships were at all times free of casual spectators. Two grandstands were provided in front of the hangars and they were kept filled all day despite the heat.

There were in the neighborhood of one hundred and fifty planes on the field for the meet. These included; 15 Martin Bombers, 40 DH4, 30 JN, 6 Curtiss Orioles, 3 Curtiss PW8, The Sikorsky S29A, the Remington Buranelli, a Huff-Daland Duster, 2 Skywriting SE5, a Thomas-Morse Scout, the Curtiss Amphibian, the Fokker PW7, the Cox-Klemin CO2, a Sport Farman, a Martinsyde Cabin Cruiser, a Sperry Messenger, a Vought Seaplane, a Curtiss Seagull, the Curtiss N9 from Fort Hamilton and many others.

General Patrick flew over from Mitchel Field, where he had flown up from Washington the day before. Other distinguished visitors were: Maj. Gen. Charles Berry, commander of the New York National Guard; Godfrey L. Cabot, President of the N.A.A.; Anthony Fokker and many others.

The following is the official list of events with the winners:

1. ON TO MILLER FIELD—open to all types of planes.
(a) To organization sending greatest number of planes. 1st prize, silver loving cup, won by 1st Division Marine Flying Corps, Quantico.
(b) To field flying greatest number of ship miles, 1st prize, silver loving cup, won by Langley Field.

2. FORMATION FLIGHT—11 a. m. Judged on maneuverability, elapsed time for assembly and number of ship miles. 1st and second prizes, silver cups, won by 1st Maryland National Guard; 2nd, 5th Observation Squadron, Mitchel Field.

3. LANDING TO A MARK—11.30 a. m. Throttles to be closed at 500 ft. altitude directly over landing circle. Three landing trials for each plane. 1st prize gold watch, won by 1st Lieut. George Cuddihay, Anacostia; 2nd prize, silver cigarette case, won by C. S. Jones, Curtiss Exhibition Co.; 3rd prize, 1 pair of Meyrowitz Goggles, won by Lieut. S. M. Connell, Mitchel Field.

4. ALTITUDE RACE—12.00 m. Open, planes must take off and land within 15 min. 1st prize, gold watch, won by Lieut. Frank (Monk) O. Hunter, Selfridge Field, 14,800 ft.; 2nd prize, silver cigarette case, won by Lieut. H. A. Johnson, McCook Field, 14,000 ft.; 3rd prize, 1 pair Meyrowitz Goggles, won by Lieut. C. Bettis, Selfridge Field, 13,500 ft.

5. THE BLUE RIBBON AIRPLANE—12.30 p. m. Open. Mechanics' sweepstakes for the Airplane best conditioned. 1st prize, 4 pairs of gold cuff links to members of winning ships crew, won by crew of Lieut. D. D. Watson's, Mitchel Field, DH4B.

6. SEAPLANE RACE—1 p. m. Open. Course Miller Field, to Statue of Liberty and return (Course B.), 1st prize, gold watch, won by Aviation Pilot, E. L. Markham, Anacostia, VE7; 2nd prize, silver cigarette case, won by Lieut. George Pond, Stelling Amphibian; 3rd prize, 1 pair Meyrowitz Goggles, won by A. L. Caperton, Curtiss Amphibian.

8. DH SPEED RACE—1.30 p. m. Open only to U. S. Army Regulation DH Planes. Distance three laps of course "A." Finish over field. 1st prize, gold watch, won by L. (Tex.) O. Rogers, Anacostia, Md.; 2nd prize, silver cigarette case, won by Lieut. W. N. Amis, McCook Field; 3rd prize, 1 pair Meyrowitz Goggles, won by Lieut. S. M. Connell, Mitchel Field.

9. SKYWRITING (Demonstration)—2 p. m.

10. AERIAL COMBAT (Demonstration)—2.30 p. m. Two seater observation plane attacked by two single-seater pursuit planes.

11. NATIONAL GUARD SPEED RACE—3 p. m. Limited to National Guard Squadrons. Distance: 2 laps of Course "A," finish over field, 1st prize, gold watch, won by Lieut. J. T. Weatherdon, N. Y. National Guard; 2nd prize, silver cigarette case, won by Lieut. Carl Rach, N. Y. National Guard; 3rd prize, 1 pair Meyrowitz Goggles, Lieutenant Fleet, Conn. National Guard.

12. STUNT FLYING—3.30 p. m. Open. To be judged on variety of stunts and skill shown in maneuvering. 1st prize, gold watch, won by Lieut. F. O. B. Hunter, Selfridge Field; 2nd prize, silver cigarette case, Lieut. C. Bettis, Selfridge Field; third prize, 1 pair Meyrowitz Goggles, won by Lieut. J. H. Doolittle, Boston Airport.

13. SMOKE SCREEN LAYING (Demonstration)—4.00 p. m.

14. OPEN SPEED RACE—4.30 p. m. Distance, 3 laps of Course "A," finish over field. 1st prize, gold watch, won by Lieut. C. Bettis, Selfridge Field; 2nd prize, silver cigarette case, won by Sergt. A. Pascall, Quantico, Va.; 3rd prize, 1 pair Meyrowitz Goggles, won by Lieut. N. Wilson, Langley Field.

15. STUNT FLYING—5 p. m. Exhibition.

16. RELAY RACE MIXED TYPES—5.30 p. m. Three planes constitute a team. Distance, each plane, 1 lap of Course "A." Finish on field, 1st prize, 3 gold watches, won by Lieut. C. Bettis, PW8, Lieut. L. O. Rogers, DH4, Lieut. Carl Rach, Miller Field JN4.

17. PARACHUTE JUMPING—6.00 p. m. Judged on time, altitude, and accuracy of landing to a mark on field. 1st prize, gold watch, won by Dan Smith, Patterson, N. J., 110 yd.; 2nd prize, silver cigarette case, won by Sergeant Cameron, Quantico, Va., 220 yd.; 3rd prize, 1 pair Meyrowitz Goggles, A. F. Starr, Lakehurst, N. J., 240 yd.

The last event on the program was the parachute jumping. A rainstorm that had been hovering blackly over the field had broken after the mixed relay races and for a time it threatened to stop the meet altogether. When the rain continued to come down in sheets, making the field dangerous, headquarters announced that the program would not be carried through to the end. This brought a protest from the men entered in the parachute event and it was finally decided to go ahead as soon as the rain moderated.

When the rain stopped it left a brisk breeze in its wake. Despite this, the planes bearing the jumpers went up. A Martin bomber carrying Edward J. Tuite, parachute jumper, got up to 3,000 ft. when Tuite decided to make his leap. He shot down at terrific speed until his parachute opened and then he began to veer out of his contemplated course. A fifty-foot circle in white in the center of the field was the target for the jumpers, the man to land nearest it to be adjudged the winner.

Tuite, carried by the wind, sailed off the field and out to

sea. Thousands who had refused to let the rain drive them away watched his course and became anxious as they saw the man descending into the water. Tuite landed with the parachute on top of him. The jumper was unable to swim. Police boat No. 5, some distance away, sped to the spot and as the police neared it Sergt. Frank Hahn dived for Tuite. He managed to hold him up and free him of the entangling parachute until both were drawn aboard the launch.

The second parachutist to come to grief was Sergt. T. D. C. Nichols of Quantico. The marine jumper went up 1,500 ft. in a DH plane piloted by Sergt. Elmo Reagan. Nichols, like Tuite, was swept out from the shore, but hit the water only about 500 ft. off the beach. Nichol's parachute was carried clear of him and the marine, a strong swimmer, struck out for the shore. The life-saving boat of the New Dorp Beach station met him half way in, and just to show how little he cared for his mishap, Nichols insised on pulling an oar to the beach.

RS-1 Progress

A tear which developed in the ballonet of the new Army semi-rigid airship RS-1 while it was being inflated at Scott Field, Belleville, Ill., may prevent the trial flight of the ship being held until fall, was announced by V. N. Braden, manager of the aeronautical department of the Goodyear Tire & Rubber Co., builders of the ship. Mr. Braden has just returned from Belleville where with the Army personnel he inspected the ship after deflation.

One of the cables which holds the roof of the bag to the keel probably became fouled, tearing through a small sleeve and reenforcement which is attached to the air-filled ballonet enclosed within the helium container.

Tests made of the helium after inflation was well under way showed that air had become mixed with it, although the gas was pure when inflation was started. A thorough external inspection of the bag showed no leaks anywhere so Col. John A. Paegelow, commanding officer at Scott Field, ordered the bag deflated. When this was done the source of the damage was revealed.

The Army Air Service is building a purification plant for Scott Field, but as this has not yet been completed, the helium will be sent to the Naval Air Station at Lakehurst, N. J., for purification. At this time the RS-1 was inflated with 500,000 cu. ft. of helium. As the RS-1 holds 719,000 cu. ft. of helium, it will require more than 2630 four-foot, metal, gas bottles to hold the helium while it is being shipped across the country.

"We are of course disappointed in the delay in the trial flights of the new ship, which was to have been the largest and fastest airship owned by the Army," said Colonel Paegelow. "However in a new experimental ship as the RS-1 is, the first of its type built in America, we were prepared for the fact that adjustments might have to be made before the ship took the air.

"The present delay is due to an error in rigging, and not to any structural weakness in the ship.

"The accident suggests one other important fact, namely the great advantage America has in the use of helium.

"If a hydrogen-filled ship had an air leak half as great as this helium ship had, the mixture of air and gas would have been highly explosive and might have resulted in the destruction of the ship. But mixing of helium and air does not make it an explosive. It simply reduces its buoyancy. And this can be restored by the purification process. If we had our purification plant at Belleville completed now the delay would not have been at all serious.

"Another thing is that hydrogen can not be purified after air has become mixed with it. We would have had to open the valve and let all the gas escape into the air. As it is now, we simply draw off the helium into metal bottles and ship it to the purification plant, where the air will be taken out and the gas returned to us as good as ever."

The RS-1 had about 500,000 cu. ft. of helium in it when deflation was ordered. The government is constructing tank cars which will obviate compressing the gas into small tanks for shipment across country hereafter.

Long Beach Air Rodeo

The Second Air Rodeo was held by the Aero Club of Long Beach, Calif., May 30 on the Long Beach municipal flying field. The events started at 1:00 p. m. and something was going on at all times. All the races but one were run around two pylons, one mile apart. This made it interesting to the spectators on account of the steep banked turns at each end and the machines were always in sight of the field. The Army and Navy Special Race was run around a three pylon course of one mile between each pylon.

Of the regular program stunting proved to be of the most interest. Ray Freeman, in a Thomas Morse plane, was awarded first place in a close decision. Earl Daugherty and Al Ebrite, both of Long Beach, and Eddie Martin of Santa Ana were other contestants.

The winners and their cups at the Long Beach Air Rodeo. Left to Right: E. C. Davis, Parachute Race; Ray Freeman, Stunting; Art Goebel, Jenny Scramble; Earl S. Daugherty, Free-for-all, Special Commercial, High Speed Commercial; Jack Fry, Dead Stick Landing; Eddie Martin, Sport Plane Race; W. B. Kinner, Kinner Special

Earl Daugherty carried off three of the nine cups by winning in fast time the special commercial race of five laps, the high speed commercial race in five laps and the high speed free-for-all of five laps. In the latter race he staged a walkaway, hurtling through the air in his French Spad and banking on the turns till it seemed he would crash the short distance to the ground, to finish in the fast time of 6 min. 15⅗ sec. His time for the special race in commercial planes, and the high speed commercial were 7 min. 49 sec. and 7 min. 30⅗ sec. respectively.

Other events besides those already enumerated were the Kinner special race, in which W. B. Kinner of Glendale won in the time of 9 min. 57⅖ sec. the Army special, won by Lieutenant Castor, U.S.A., in 12 min. 6 4/5 sec.; the Jenny Scramble, taken by Art Goebel of Santa Monica in 12 min. 9 sec., and the sport special won by Eddie Martin of Santa Ana in 7 min. 35 sec.

In the Dead Stick Landing to a mark from 1000 ft. altitude, then, Jack Frye of Glendale stopped 40 in. from the mark.

Climaxing the program of events, four parachute jumpers leaped almost simultaneously from planes 2000 ft. in the air in a race to land first.

Cups for the Rodeo were donated as follows: for the Jenny Scramble, Billy Meyers, donor; for the Kinner Special Race, Crescent Oil Company, donor; for the Commercial Special, Shields Truck Company, donor; for the High Speed Free-For-All, Long Beach Aero Club, donor; High Speed Commercial, Long Beach Press-Telegram, donor; Sport Plane Special, Hugh A. Marti Company, donor Stunting Contest, Long Beach Morning Sun, donor, and Parachute Race, Martin Airport, Santa Ana, donor.

Officials were Patrick McCarty, Chicago, T. C. Ryan, Los Angeles and Squire F. DuRee, local superintendent of recreation, judges; Chester Young of Santa Ana, starter, and Mrs. Inez Donovan, Long Beach, clerk of course.

New York-Chicago Night Mail Schedule

The Post Office Air Mail Service between New York and Chicago will be inaugurated on July 1. Planes will fly between the two cities every night except Saturdays and Sundays. For the business man the new mail service will mean the saving of a business day in the transportation of mail from New York to Chicago.

This service will be in addition to the regular transcontinental air mail service now in operation. Sixteen pilots and twenty-four planes are assigned to the new service. The schedule calls for one plane flying each way daily, but in all probability as many additional ones will be added as traffic demands, it is stated.

The following is the schedule for the planes flying from New York to Chicago:

Leave New York Post Office, 8 p. m.; leave New York field, 9.30 p. m.; arrive Bellefonte, 11.30 p. m.; leave Bellefonte, 11.50 p. m.; arrive Cleveland, 2.20 a. m.; leave Cleveland, 2.40 a. m., E.T.; arrive Bryan, 3.10 a. m., C.T.; leave Bryan, 3.30 a. m.; arrive Chicago Field, 5.45 a. m.; arrive Chicago Post Office, 6.45 a. m.

Chicago to New York, East—Leave Chicago Post Office, 7.30 p. m.; leave Chicago field, 8.30 p. m.; arrive Bryan, 10.10 p. m.; leave Bryan, 10 p. m., C. T.; arrive Cleveland, 1 a. m., E.T.; leave Cleveland, 1.20 a. m.; arrive Bellefonte, 3.30 a. m.; leave Bellefonte, 3.50 a. m.; arrive New York field, 6 a. m.; arrive New York Post Office, 7.30 a. m.

Postal rates will be 10 cents an ounce. According to Colonel Henderson, any mailable matter, except that liable to damage by freezing, may be sent by air at that rate, including sealed parcels not exceeding 50 lb. in weight and not exceeding 84 in. in length and girth combined. No exceptions are made in regard to banking and commercial paper. Air mail may be registered.

J. E. Whitbeck, superintendent of the eastern division of the Air Mail, has had charge of mapping out the course between here and Chicago. It was necessary to acquire and light an airway with forty-six emergency landing fields and fifty-six beacons. This was done at a cost of $500,000, which includes the first year's rentals on the fields.

The course which the planes will follow is shorter by 150 mi. than any railway connection between the two cities.

The overnight service, with the saving of time it will afford in the transmission of securities and other financial paper, will prove very popular.

Stops for fuel will be made at Bellefonte, Pa., and at Cleveland and Bryan, Ohio. Each of these stations is furnished with a 500,000,000 candle power B.B.T. flood light, as aids for successful night landing. The emergency fields are provided with smaller lights. Each plane will carry 240,000 candle power headlights in addition to the regular port and starboard lights. The pilots will fly only to Cleveland, the mail being transferred there to another plane for the balance of the journey.

The pilots who will fly in the new Air Service are:

W. L. Smith, J. D. Hall, D. C. Smith, H. A. Chandler, P. F. Collins, C. H. Ames, L. F. Berteaud, E. F. Ward, W. D. Williams, Art. Smith, R. H. Ellis, J. F. Milatzo, G. I. Myers, S. J. Short, J. O. Webster and Pilot Brown.

French Air Tour

There has been considerable talk about the organization of a cross country tour for commercial airplanes to take place in the fall which would start from Detroit and cover a number of cities throughout the Middle West, the total distance of the tour being in the neighborhood of a thousand miles. In view of this the regulations for the French tourist plane competition should be of interest to our readers. The French cross country tour has been run for several years under the auspices of the Aero Club of France and has received the active support of the Aeronautical Technical Section and the Air Navigation Section of the government. The prize money, amounting to 215,000 francs, and the money for the organization of the meet, amounting to 85,000 francs, is furnished by the Under Secretary of State for Aeronautics.

Entrants are limited to machines of entirely French design and manufacture and a bond of 500 francs must be put up by each entrant three months before the event. Late entries put up a double bond, but bonds are refunded if the machines finish two legs of the journey. Single seaters are limited to 65 hp., two seaters to 130 hp., three seaters to 190 hp. and four seaters are limited to 250 hp. Amphibians are figured as carying one more passenger than an equivalent land machine. The planes must carry actual passengers in seats of a specified size. All parts of the plane and engine are marked and sealed and all replacement parts must be carried in the plane.

The elimination test requires a climb of 3,300 ft. in 10 min. with the regulation load. Passengers must weigh at least 154 lb. with an addition of 22 lb. for baggage. Two and one half hours of gasoline figured on the maximum horsepower of the engine must be carried. The tour will take nine days with two stops each day, with the exception of the fourth day, which is a day of rest. The total distance is 1,500 mi. or an average of about a hundred miles between stops.

On each lap the contestant will be granted 200 points if he makes a speed of over 50 mi./hr. If he attains a speed greater than this he is given points on the following formula.

$$7\frac{V-25}{W}$$

where V represents the speed in kilometers per hour and W the horsepower per passenger carried. (The horsepower is taken from official French ratings.) If the contestant makes less than 50 mi./hr. he is penalized progressively until he is penalized 200 points for a speed of under 45 mi./hr. If he is penalized more than 600 points he is eliminated from the contest. Planes not reaching the destination before the close of the controls will also be eliminated.

At the start each plane will be given 1,300 points but delay in take-off will be penalized as follows: 30 min. after departure signal 50 points; 60 min. after signal 100 points penalty. Incidentally some kind of engine starter must be used as entrants are not allowed to swing their props. Any entrant having more than 200 points penalty for late starting will be eliminated.

A penalty of 400 points will be imposed for breaking the seals on the engines and three openings of the engines will eliminate the contestant. A change of wheel or tail skid will cause penalty of 50 points.

One hundred thousand francs go to the eight planes with the highest scores. There is also a prize of 5,000 francs for the best technical record of the trip made by the pilot or passenger in any plane. Prizes amounting to 20,000 francs are to be given for safety features in the construction of the planes. There is also a bonus offered for every kilometer flown amounting to 0.75 francs for single-seaters, 1 franc for two seaters and 1.50 for four seaters. These bonuses are only given out on completion of each of the three legs of the tour. There is also a bonus on the same basis for every day of the contest amounting to 80 francs for the single-seaters, 120 francs for the two-seaters, 160 francs for the three-seaters and 200 francs for the four-seaters.

Water Model Tests for Semirigid Airships

N.A.C.A. Report No. 211

The design of complicated structures often presents mathematical problems of extreme difficulty which are frequently insoluble. In many cases, however, the solution can be obtained by tests on suitable models. These model tests are becoming so important a part of the design of new engineering structures that their theory has become a necesary part of an engineer's knowledge.

For balloons and airships water models are used. These are models about 1/30 the size of the actual ship hung upside down and filled with water under pressure. The theory shows that the stresses in such a model are the same as in the actual ship.

In the design of the Army semirigid airship RS1 no satisfactory way was found to calculate the stresses in the keel due to the changing shape of the bag. For this purpose a water model with a flexible keel was built and tested. This paper, by L. B. Tuckerman, gives the theory of the design, construction and testing of such a water model.

Report No. 211 may be obtained upon request from the National Advisory Committee for Aronautics, Washington, D. C.

MacMillan–Navy Expedition Sails

Donald R. MacMillan Starts on his Ninth Arctic Voyage with three Naval Loening Amphibian Airplanes

People were gathered from miles around when Lt. Comdr. Donald B. MacMillan and his Arctic crew set out June 20 to explore unknown regions in the polar sea.

It was like a pleasure excursion to watch, with little colored balloons drifting overhead, a seaplane flying low over the water, a brass band playing and thousands of persons crowded along the shore. There were whistles and cheers as MacMillan at the wheel steered the Bowdoin out to sea.

The ceremonies began at 2.15 o'clock in the afternoon on the porch of the First Congregational Church. It stands on a hill at the head of the main street, with a green lawn and elm trees around it.

The 5th United States Infantry Band came up from Portland. All morning they played under the shade of a tree on Main Street. A detachment of soldiers from Augusta was detailed to assist the state constabulary in handling traffic and the crowd of people.

More than 2,000 persons attended the ceremonies on the church porch, where Gov. Ralph O. Brewster introduced Commander MacMillan; Capt. D. E. Dismukes, commandant of the Portsmouth Navy Yard and representative of the Navy Department; Dr. Gilbert Grosvenor, president of the National Geographic Society; Maj. Gen. A. Greely, the oldest living Arctic explorer; Lt. Comdr. R. E. Byrd, who is in command of the United States Naval contingent, and Dr. Kenneth C. M. Sills, president of Bowdoin College.

The bulk of the crowd stayed down by the old whale wharf, along the shore by the railroad tracks, to assure themselves of vantage points to watch the auxiliary schooner Bowdoin and the steamer Peary sail. And the soda pop and ice cream business flourished while they waited.

The speeches lasted for an hour. MacMillan was praised, the Navy was praised and the Geographic Society was praised for its cooperation with the Navy in this Arctic expedition. MacMillan's talk was brief. He told of the hopes of the expedition and outlined its course. He said he thought that the air was the most likely route to success in this venture. He thanked all for their courtesy and sat down.

At the wharf a way had to be made through the crowd so MacMillan could reach his ship.

The Peary had been taken out and anchored in the stream, near the two Navy Eagle boats. She is the supply ship, and carries the Navy contingent and the Loening ambphibian planes. She is heavy laden and rode low in the water, the cut of her lines giving her the appearance of being bent amidships.

It is amazing how much equipment is stored on these two small ships. There are two and a half tons of batteries alone on the Bowdoin, and 8,000 tons of gasoline. Then there is the food supply, and the thousands of miscellaneous things, which are part of a polar expedition's equipment.

There are dolls, for example, for the Eskimos, and a crate of trinkets. There is soap, and tobacco, also for the Eskimos. They are fond of tobacco and they love the smell of liquid soap. Perfume would freeze, so they give them soap, and the Eskimos keep it indefinitely, enjoying its perfume.

The Bowdoin is taking a refrigerator to the polar sea because the food may spoil before the expedition reaches the Arctic regions. The aviators are taking homing pigeons with them. Their planes are equipped with radio supposed to work either while they are in the air or on the ground or in the water. But the aviators have their pigeons with them.

Chief Boatswain E. E. Reber was still receiving letters from all over the United States when he left telling him what to do for the ulcer he was reported to have in his stomach. Reber is a husky, hard-bitten fellow with an appetite like an ostrich. He eats anything an everything, because the ulcer was cured three years ago.

Of the crew of thirty-eight on the two ships only two besides MacMillan have ever been in the Arctic. These are John M. Jaynes, of Somerville, Mass., who was one of MacMillan's pupils when he was a school teacher, and Ralph P. Robinson, of Merrimac, Mass. Jaynes is engineer on the Bowdoin, and this is his third voyage with MacMillan. Robinson is mate of the Bowdoin, and he has been out once before.

The rest are picked and useful men, and the Navy contingent on the Peary under command of Lt. Comdr. R. E. Byrd have been selected with care.

Lieut. M. A. Schur hails from San Diego, Calif., and Chief Boatswain Reber comes from Millville, N. J. They are the pilots who will fly the Loening amphibian planes. Each has had more than 2,000 hr. in the air.

Dr. Walter Koelse, the icthyologist of the expedition, passed ten years at one time in his life studying nothing but the white fish of Lake Michigan.

Jacob Gayer, the staff photographer, is a specialist in color photography. He hopes to get pictures of things which have been seen by only a few men—the "Red" snow and the rare birds which migrate from Patagonia to lay their young near the North Pole.

Perhaps one of the most interesting members of the crew is John L. Reinartz, the radio operator of the Bowdoin, because all the amateur radio fans in the world will be on the alert for his messages. The news coming from the expedition will be sent on twenty and forty meter wave lengths. MacMillan hopes to be able to talk over the radio from his position near the pole.

Down the Sheepscot River the Arctic ships led the convoy. At night they put into Monhegan Island, about 30 mi. from Wiscasset, where the guests were put ashore and the compasses were tested.

From there the two ships will go to Sydney, N. S., for coal, then along the Labrador Coast to Battle Harbor, due northeast, then to Melville Bay, and so to Etah, Greenland, where they hope to arrive in the last week in July.

Etah will be the ship base. There the amphibian planes will be assembled and flown to Cape Thomas Hubbard, on the northern tip of Axel Neiberg Island, where an airplane base will be established. From there the planes will explore the polar sea, two at a time.

From the Navy's point of view it is important to know flying conditions this far north and the possibility of establishing air bases in the polar regions. If all goes well, the expedition will have finished its work Aug. 25 and will return Sept. 30.

The personnel of the expedition is as follows. Schooner Bowdoin: Lieut. Comdr. Donald B. MacMillan, captain; Ralph P. Robinson, mate; John W. Jaynes, engineer; John L. Reinartz, radio operator; Onnig Melkhon, sailor and photographer; Martin E. Vorce, Richard Salmon, and Kennett Rawson, sailors; Maynard Owen Williams, staff writer and photographer, and Benjamin H. Rigg, magnetic observer, tides and currents, National Geographic Society representatives.

Steamship Peary: Lieut. Comdr. E. F. McDonald, commanding; George F. Steele, captain; U. J. Hermann, mate; Hosmer L. Freeman, mate; W. D. Publicover, chief engineer; Paul J. McGee, radio operator; P. D. Davison, 1st assistant engineer; William Parker, E. J. Freel, Van R. Brown, firemen; Edward MacNamara, John MacNamara, Henry King, seamen; Adolph Harloff, cook; John Kenney, messman; Rufus Sewell, officers mess; Jacob Gayer, staff photographer National Geographic Society; Walter N. Koelse, icthyologist, Bureau of Fisheries.

United States Naval contingent attached to the Peary: Lieut. Comdr. R. E. Byrd, comamnding; Lieut. M. A. Schur; Chief Boatswain E. E. Reber; N. P. Sorenson; Albert Francis; C. F. Rocheville; A. C. Nold; Floyd Bennett.

"Who's Who in American Aeronautics"

The second edition of "Who's Who in American Aeronautics" will be published Sept. 1, 1925. Below will be found new biographies that will appear in the forthcoming volume. An invitation is extended to all pilots actively engaged in aviation military, naval or commercial to send their biographical sketches for insertion in the next issue. The book will contain the biographies of practically all the leading persons in American aeronautics. The price of the book will be two dollars. Orders are being taken in advance as the edition is limited.

Carl Francis Egge

EGGE, CARL FRANCIS, General Supt., Air Mail; born, Grand Island, Nebr., Aug 6, 1870; son of A. A. Egge and Ollie (Rosencranse) Egge; married, A. Elizabeth Hensinger, August 6, 1892.

Educated: Grand Island, Nebr.

Professional: Clerk, Grand Island, Nebr. Post Office, April 1, 1891; Railway Mail Service, Oct. 3, 1892; Special Agent, Rural Delivery Service, Mar. 23, 1904; Post Office Inspector, July 1, 1906; Ass't. Supt., attached to office, Second Ass't. P. M. G., Aug. 1, 1918; Division Supt., Air Mail Service, Sept. 16, 1920; General Supt. Air Mail Service, June 16, 1921 to date.

Aeronautical Activities: Continuous service in Post Office Department since April 1, 1891; Aeronautical Activities since August 1, 1918 in office of Second Assn't., P .M. G.

Present Occupation: General Supt., Air Mail Service.

Address: Room 411, Federal Bldg., Omaha, Nebr.; home, Continental Hotel, Omaha, Nebr.

Carl B. Fritsche

FRITSCHE, CARL B., Engineer, Lawyer, Banker; born, Nashville, Tenn., Oct. 5, 1885; son of Charles G. Fritsche and Matilda (Berges) Fritsche.

Educated: Grad. Fogg High School, Nashville; Studied Civil Engineering, Private Tutors; Grad. Indiana Law School, Degree, L. L. B.

Professional: Railroad location and construction, 1905 to 1908; Mining engineering, 1909 to 1911; Hydro-electric engineering, 1911 to 1913; N. Y. Subway tunnels, 1914; L. and N. R. R., tunnel contract, 1915; Law School, 1916-1917; Politics, 1919-1920; managed, Harding Campaign in Michigan.

Aeronautical Activities: Founded, Aircraft Development Corporation, 1921; Governor for Michigan, N.A.A.; Secretary, Detroit Aviation Society; Member Detroit Air Board.

War Service: 1917-1918, U. S. Dept. of Labor, in charge of mobilization of war labor in 6 states.

Member: Detroit Yacht Club; Detroit Union League Club; Detroit Aviation Society.

Present Occupation: Associated with Charles A. Parcells and Co., Investment Banker; General Manager, Aircraft, Development Corporation.

Address: General Motors Bldg., Detroit, Mich.; home, 400 Burns Drive, Detroit, Mich.

Ivan Howard Driggs

DRIGGS, IVAN HOWARD, Aeronautical Engineer; born, Lansing, Mich., April 8, 1894; son of Edgar Howard Polhamus and Bernice (Driggs) Polhamus; (adopted by mother's family and name changed to Driggs upon death of father at early age); married, Eva Elizabeth Wright, Jan. 1, 1916.

Educated: Lansing, Mich.; Mich. State College, at East Lansing, 1912 to 1914.

Professional: Automobile salesman 1915; Reo Motor Car to 1916; Motor Wheel Corp., 1916-1917; Dayton Wright Co., 1917; McCook Field, 1918; Dayton Wright Co., 1919 to 1924; Consolidated Aircraft Corp., 1924; Johnson Airplane and Supply Co., 1924 to date.

Aeronautical Activities: Constructed first airplane, 1915; Dayton Wright Co., 1917; McCook Field, 1918; Dayton Wright Co., 1919 to 1923, Chief Draftsman and Ass't. Chief Engineer, assisted in design of D.W. Racer; RB1 FP2, TA3, TA5, TW3, TS1 WA and WS types for the U. S. Army and Navy; with Consolidated Aircraft Corp. 1924; 1924, Chief Engineer, Johnson Airplane and Supply Co., building the Driggs-Johnson light airplanes which won the Dayton News Trophy at Dayton Air Races and placed second in each of the other races; 1925 to date Vice-President and Chief Engineer of the Johnson Airplane and Supply Co.; designed and constructed the "Canary."

Present Occupation: Vice-Pres. and Chief Eng. Johnson Airplane and Supply Co.

Address: Wilmington Pike, Dayton, Ohio; home, 37 Glenbeck Blvd., Dayton, Ohio

Arthur William Vanaman

VANAMAN, ARTHUR WILLIAM, 1st Lieut. Air Service; born Millville, N. J., May 9, 1892; son of William A. Vanaman and Mary (Young) Vanaman; married, Blanche Garroway, April 6, 1918.

Educated: Drexel Institute, B. Sc., in E. E., '15.

Professional: Westinghouse Elec. and Mfg. Co., Service Engineer, 1915 to 1917.

Aeronautical Activities: Cadet at Kelly Field, Sept. to Dec. 1917; C.O., 812 Sq. to April 1918; Student Mass. Inst. Tech. to July 1918; Eng. Officer, Scott Field to Dec. 1918; Chief Eng., Middletown, A. I. Depot to March 1920; Chief Eng., Rockwell A. I. Depot to March 1920; Chief Eng., Camp Nichols, Rizol, P. T. and C. O., 66th Service Sq., Jan 1924; C. O. Flight A., 28th Sq., Jan. 1925; Ass't. to Supply Officer, San Antonio, A. I. Depot.

Flying Rating: Airplane Pilot.

War Service: August 2, 1917 to 1919.

Present Occupation: 1st Lieut., Air Service.

Address: San Antonio A. I. Depot, San Antonio, Tex.; home, 621 N. 2nd Street, Millville, N. J.

Guy H. Gale

GALE, GUY H., 1st Lieut., Air Service; born, Santa Ana, California, February 20, 1893; son of George H .Gale and Annie C. (Harrison) Gale; married, Bernice Hutchinson Gale, Feb. 7, 1922.

Educated: University of California, B. S.

Professional: U. S. Air Service, May 1917 to date.

Aeronautical Activities: Enlisted Air Service May 1917; Italian pilot's brevet, Dec. 1917; 2nd Lieut., Air Service, O.R.C., Jan. 1918; 1st Lieut., Air Service, O.R.C., March 1918 to Sept. 1920; 1st Lieut., Air Service, July 1920 to date.

War Service: Italian Pilots Brevet, December, 1917; Airplane Pilot, 1920.

Present Occupation: 1st Lieut., Air Service.

Address: Fort Bliss, Texas; home, Fort Bliss, Texas.

Edwin M. Fisk

FISK, EDWIN M., Aeronautical Engineer; born, Erie, Penn., March 19, 1877; son of Edwin M. Fisk and Emma Catherine (Mumea) Fisk; married, Cora M. Bowman, March 19, 1901.

Educated: Public School.

Professional: Machinist, Die Sinker and tool maker and salesman to 1910; Airplane designing and engineering to present.

Aeronautical Activities: Joined Aero Club Southern Cal., 1910; started building first plane same year; Started flying in 1914; has built eleven planes, including monoplane, biplane and triplane, one, two and three engined.

War Service: Infantry during Spanish American War.

Member: Vice-Pres., Aero Club, So. Calif.; Past Pres., Commercial Aircraft Asso., So. Calif.; N. A. A.

Present Occupation: Catron and Fisk Airplane Co.

Address: P. O. Box 98, Venice, Cal.; home, 6201, Ocean Front, Venice, Cal.

Ivan Wood Everly

EVERLY, IVAN WOOD, Commercial Aviation; born, Morgantown, W. Va., May 14. 1902; son of John Lawrence Everly and Chancie B. (Provance) Everly; married, Elizabeth Beryl King, Oct. 11, 1924.

Educated: Smithfield High School, California, Pa.; Normal School, 1921-1922.

Professional: Principal Public School, 1922 to 1925; Manager, Everly Aviation Co., 1924- to date.

Aeronautical Activities: Aeronautical studies and designing, 1918; Re-designed and re-built planes, 1923-1924. Flying at Mayer Field, Pittsburg, Pa., 1924.

Present Occupation: Gen. Mgr. Everly Aviation Co.

Address: 355 Main Street, Smith Field, Pa.

Archibald Hugh Douglas

DOUGLAS, ARCHIBALD HUGH, Lt. Commander, U. S. Navy; born, Bennettsville, S. C., Feb. 8, 1885; son of A. J. Douglas and Nannie (Harlan) Douglas; married, Winifred Davis, Oct. 1, 1921.

Educated: U.S.N.A., Annapolis, '08.

Aeronautical Activities: Began flight training at Naval Air Station, Hampton Rds., Va. June 10, 1918; completed training and was designated to Naval Aviation July 25, 1918; Northern Bombing Group, France, Aug. 20, 1918; remained with this organization until end of war; demobilized, N.B. group; in command, latter part of demobilization until Feb. 9, 1919; proceeded to Brest, France and assumed temporary duty on staff of Aid for Aviation at Headquarters, Commander, U. S. Naval Forces in France; advanced flying training, Pensacola; May 29, 1919 to July 24, 1919; Aid for Aviation on staff Commandant, 3rd Naval District; commanded Naval Air Station, Rockaway Beach, L. I., Nov. 5, 1919 to Nov. 23, 1920; executive officer and commanding officer of U.S.S. Aroostook. Flagship, Aircraft Squadrons, Battle Fleet, Captain of the yard at Naval Air Station, Pensacola from Feb. 23, 1922 to date.

Flying Rating: Naval Aviator.

War Service: Aug. 20, 1918 to Feb. 9, 1919.

Member: Army and Navy Club (Wash.); Mountain City Club, Chattanooga, Tenn.; Pensacola Country Club.

Present Occupation: Lt. Commander, U. S. Navy.

Address: Naval Air Station, Pensacola, Fla.; home, 1137 East Terrace, Chattanooga, Tenn.

Ralph Warren Cram

CRAM, RALPH WARREN, Editor; born, Zanesville, Ohio, June 19, 1869; son of Charles Warren Cram and Clarissa (Deming) Cram; married, Mabel LaVenture, Dec. 27, 1892.

Educated: Various cities.

Professional: Editor, The Davenport, (Ia.) *Democrat* for 20 years.

Aeronautical Activities: Governor Commercial A.A., 6th Corps Area, 1922; Signer of Charter, N.A.A., Detroit, 1922; Gov. for 7th Corps Area; elected Vice-President of N.A.A. at St. Louis, 1923; now Gov for Iowa, N.A.A.

Member: Davenport Chapter, N.A.A. Outing Club.

Present Occupation: Editor, *The Democrat.*

Address: 411 Brady St., Davenport, Ia.; home, East Fourth St., Bettendorf, Ia.

Harry Coleman Drayton

DRAYTON, HARRY COLEMAN, Captain, Air Service; born, Penllyn, Montgomery Co., Pa., April 5, 1887; son of William Drayton, and Edith Newbold (Welsh) Drayton; married, Marjorie Elliot.

Educated: Chestnut Hill Academy, Phila., Pa.

Professional: Oil business, member of firm of Drayton & Maury, Philadelphia, Pa.

Aeronautical Activities: Student, Signal Corps Aviation School, Mineola, April to July 1917; C. O., 40th Aero Squdrn. Selfridge Field, Mt. Clemens, Mich. to Nov. 1917; Engineer, Dept., Office of Chief Signal Officer, (Aviation Section) to Feb 1918; France, to Feb. 1919; On duty, O. C. A. S., to 1920, organizing squadrons for the Phillipine Islands; Chief of Pilots School; Transcontinental Race, 1919; Langley Field, Hampton Va., to 1922; participated in bombing German war ships off Chesapeak Bay; C.O. of Field Officers School Detachment; Graduate of Field Officers School, Mitchel Field, 1922; 1924-1925, C. O., 1st Observation Squadron

Flying Rating: A P.

War Service: Pvt., 1st Troop, 1st Pa. Cav., June 1916 to Jan. 1917; Mexican border Service, Sergeant, Aviation Section Signal Corps to July 1917; First Lieut. to Feb. 1919; Captain, A. S. O. R. C. to July 1, 1920; Captain, Air Service to date.

Present Occupation: C. O., 1st Obs. Sq., A. S.

Address: Mitchel Field, L. I.; home, Warley, Penllyn, Pa.

Amundsen Flies Back to Spitzbergen

One of the two Dornier Planes Returns with all Six of the Party Aboard after Twenty-Eight Days Absence

The North Pole expedition of Aero Club of Norway headed by Roald Amundsen and Lincoln Ellsworth has returned safely to civilization. They did not reach the pole itself but were nearer to it than any other party, except that of Admiral Peary, has been. It is reported that Amundsen expects to make another attempt in the near future.

The planes left Kings Bay, Spitzbergen, at 5 p. m. May 21, with load approximating three tons, by way of Amsterdam Island. At 6 o'clock they encountered a fog, above which they rose to height of 3,000 ft. During the next two hours the planes flew through the fog, which lasted until 8 p. m. After 8 p. m. and for the remainder of the journey visibility conditions were excellent.

Off the Course

An observation at 10 p. m. showed that the flight was too far to the west, probably due to northeast winds above the fog, which prevented the deviation from being definitely determined. The course was laid farther east until 1 o'clock in the morning of May 22, when half of the fuel supply was exhausted, and it became necessary to attempt a descent in order to secure definite bearings with a view to further movements.

They were then above a large lane in the ice, the first of this size which had been encountered. Not once during the trip had a suitable landing place among the jagged ice of the polar cap been seen. Immediately after landing on the water the N25 became locked between two masses of ice while the pilots were trying to get their machines clear. In a short time the whole ice lane froze tight, gripping the N24 also.

Observations during the night disclosed the position as 87 deg. 44 min. north latitude and 10 deg. 20 min. west longitude, so that the distance covered in the eight hours' flight was 667 mi. As the average speed was 93 mi./hr., this meant that a head wind had put them back 125 mi.

During the following days they studied the drift conditions and observed the magnetic variation and also the meteorological situation. While flying northward they had "observed" an area of about 100,000 sq. km., reaching to about 88.30 north, without any indication of land. Considering the depth disclosed by soundings, it was therefore thought most improbable that any land would be found farther north on this side of the Pole. Moreover, there were no grounds for assuming that ice conditions farther north would be such as to permit of a landing. A landing at the actual Pole, with opportunity for observation would apparently have been impossible. Amundsen believed that merely flying over the Pole without making these accurate observations would have been feasible under the conditions we observed, although without real significance and therefore not worth taking a great risk to accomplish. They agreed finally that, instead of continuing farther north, they would lay a return course by a route farther east, in order to cross hitherto undiscovered tracts.

Runway

With the planes ice-blocked, apparently the greatest difficulty was to get them into the air again. The situation was obviously critical and with a view to lasting as long as possible the daily rations were reduced after the first day to 300 grams per head. This was less than a pound per day per man, and meant stretching their food supply over twice the period originally planned.

In order to get one plane clear, all their energies were concentrated on the N25, and for the following twenty-four days they underwent all sorts of difficulties caused by the vagaries of the fickle Arctic Ocean. The N25 being freed after the greatest exertions, though showing signs of strain, it was lugged practically undamaged out of the pack of ice to a starting place which had been levelled some distance away.

On June 14 cracks suddenly opened in the ice under foot, threatening to remove a third of the work which had been done in levelling a starting place along the frozen surface. In view of this serious possibility, it was decided on the morning of the fifteenth to make starting trials with a greatly reduced load, without waiting to further lengthen the cleared area.

Nearly all the equipment was discarded, keeping only a minimum of food stores and the smallest possible quantity of gasoline to proceed southward to the base. The start was successful and a course was set for Spitzbergen at 10.40 a. m. After an exciting flight, partly through fog, North Cape, the northern point of Northeastland, a large island forming the northeastern part of Spitzbergen was reached. The flight to this spot required eight hours and thirty-five minutes.

A landing was made at North Cape, awaiting favorable winds for the continuation of the flight with the remaining 30 gal. of gasoline. This would only be sufficient to take them to some point westward, where they would have been within range of the steamer Hobby's patrol area.

Observations

During the return trip they continued to make similar observations to those which had been made on the way north. But on account of the fog, it is estimated that not more than 60,000 sq. km. along the return route were observed. Thus, up and back, the expedition has made observations on 160,000 sq. km. of hitherto unexplored area.

Immediately after the landing at North Cape the Norwegian sealer Sjoeliv from Battsfjord was sighted passing far to the westward. They immediately hopped off and went out to it. They were gladly received on board the ship and the plane was taken in tow. But toward night the wind freshened to a gale and they were compelled to make for shelter on the west side of Lady Franklin Bay, where they remained during the night.

As there was no improvement in the weather on June 16, the plane was made secure to the land ice on the edge of this bay, and the members of the expedition left aboard the Sjoeliv for Kings Bay, a distance of about 130 mi. by sea, arriving in Kings Bay at 1 o'clock in the morning of June 18.

During the flights, both up and back, the Goerz solar compasses were of essential importance and operated with entire satisfaction. This is probably the first time that solar compasses have been used in the Aretic, and certainly the first time they have been used for aerial navigation in this part of the world.

British Tubing Authority in United States

The firm of Accles & Pollock, Ltd., of Oldbury, Birmingham, England, one of the largest manufacturers of steel tubing, who for many years have specialized in aircraft tubing, are now represented in the United States by Jonas B. Oglaend, Inc., 15 Moore Sreet, New York.

W. W. Hackett, managing director of Accles & Pollock, Ltd., is at present in this country. Mr. Hackett is a member of the Royal Aeronautical Society of Great Britain and a founder member of the Society of British Aircraft Constructors. He is the author of authoritative papers on steel tubing which have been read before the Royal Aeronautical Society and the Society of Automobile Engineers.

During his stay in the United States Mr. Hackett's business address is c/o Jonas B. Oglaend, Inc., 15 Moore Street, New York.

Civil Aviation in Canada

Canadian Report on Civil Aviation Shows that Aircraft Are Used Very Extensively

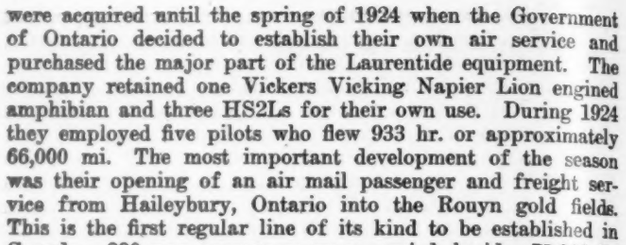
The Department of National Defence of the Dominion of Canada puts out each year a report on Civil Aviation and also on the civil operations of the Royal Canadian Air Force. Those who get out this report are certainly to be congratulated. The contents gives a very complete birdseye view of what has been going on in the Dominion and the text is well illustrated with pictures and maps. The report for 1924 starts with a general introduction on the various phases through which aviation in general has passed, it then gives a summary of the year's progress abroad and at home. There is a brief sketch of the relations of Canada to the International Commission for Air Navigation followed by a much more detailed report on the control of civilian flying in Canada. The report then takes up commercial flying, flying done by the Provinces and finally the flying done by the R.C.A.F. for various other branches of the government. It will be seen that the report is very comprehensive and besides being useful to those who have only a general knowledge of aviation, it still contains much valuable information for the specialist in aeronautics.

Report Lengthy

The report is too long to be summarized in detail but a brief review of a few of the salient features is made below for those who have not the time to read the full report. There seem to be two general tendencies going on in Canada. Development in Canada has followed along rather different lines than those in the United States. Commercial flying by individuals and small companies which forms the backbone of commercial flying in the United States started out after the war with a great boom in Canada but due to the small and scattered population and the long winter this has been gradually dying out until now there are only a few individuals engaged in it. On the other hand the Canadian government has greatly encouraged the development of aircraft for special uses such as forest fire patrol, mapping work, timber cruising, protection of fisheries etc. As early as 1919 the Canadian Air Board made a study of how aviation could be used by the various departments of the government. Although the Air Board has been reorganized and air work has been put under the department of National Defense the policy of the government to encourage in every way possible the use of aircraft by other government departments has continued. It is held that: "civilian operations are a great asset to the Air Force; apart from the direct value of training under varied conditions work of this kind strengthens the initiative and the resources of the officers and men in a way that no program of routine training can possibly do."

The dominion government at first loaned out their planes to the various provinces but having demonstrated the value of aircraft the central government decided to withdraw from this field and leave it open to commercial companies. This was done with the concurrence of the provincial authorities and during the past two years the energies of the Royal Canadian Air Force have been confined almost wholly to work with other Dominion Government services.

The development of the commercial companies which were to do the flying for the provincial governments does not seem to have been as successful as was hoped. The first company in the field was the Laurentide Co. one of the largest pulp and paper companies. Experimental work was done in 1919 using HS2Ls and later the Laurentide Air Services, Ltd. was organized to carry on the work. This company besides doing timber cruising and photographic work for the paper company entered into contracts with the Provincial Government of Ontario for the preparation of reconnaissance maps showing forest types in Northern Ontario and Quebec. The work showed a continuous development and new machines were acquired until the spring of 1924 when the Government of Ontario decided to establish their own air service and purchased the major part of the Laurentide equipment. The company retained one Vickers Vicking Napier Lion engined amphibian and three HS2Ls for their own use. During 1924 they employed five pilots who flew 933 hr. or approximately 66,000 mi. The most important development of the season was their opening of an air mail passenger and freight service from Haileybury, Ontario into the Rouyn gold fields. This is the first regular line of its kind to be established in Canada. 890 pay passengers were carried, besides 78,000 lb. of freight and 15,000 letters and telegrams. The distribution of the companies flying time was freight, mail and passenger service 516 hr. test and instruction 12 hr. cross country 220 hr. survey and reconnaissance 127 hr. photographic survey 55 hr. misc. 3 hr. No accident occurred involving injury to anyone.



One of the Fairchild Aerial Surveys Co. (of Canada) ships, a Huff-Daland seaplane

The Dominion Aerial Exploration Co. using two HS2Ls and two Norman Thompson flying boats flew 140 hr. on fire patrol, 180 on sketching and reconnaissance and 26 on photography. Reconnaissance and sketching was carried out over an area of approximately 24,000 sq. mi.

The Fairchild Aerial Surveys Co. (of Canada) which is associated with the Fairchild Aerial Camera Corp. of New York continued its operations using an especially designed Huff Daland plane and a Curtiss Standard. Mosaic maps were made of 1,425 sq. mi. of property during 232 hr. of flying. The work was done in connection with a water storage project and also for the laying out of a new railroad.

The Alaska Airways, Ltd. which operates an international mail service between Seattle, Wash. and Victoria, B. C. flew 18,816 mi. in 242 hr. and carried 44,800 lb. of mail.

Provincial Service

Of the provincial governments Ontario is the only one which has gone into operations on a considerable scale on its own account. During 1924 they purchased fourteen HS2Ls and one Loening Airyacht. With this equipment 2,595 hr. were flown of which 1,547 was in fire protection work, 410 in sketching and photography, 85 in transportation and 66 in instruction. Five hundred and ninety-seven fires were located and 1,500 sq. mi. were mapped or sketched.

As has been stated before it is the policy of the R.C.A.F. to encourage flying by the provinces and commercial companies, and to limit themselves to cooperation with the various bureaus of the central government, such as the Department of the Interior, Department of Indian Affairs, Department of Marine and Fisheries and the Department of Customs. There is not space here to describe in detail this work but briefly 2,471 hr. or 163,988 mi. were flown of which 398 were

service flying, 508 aerial survey, 1,366 forest patrol and 357 miscellaneous flying. The steady progress of this work and the growing cooperation of the other government departments is a hopeful sign and Americans would do well to become more familiar with the details of this government air work in Canada.

The government flying work during 1924 was greatly facilitated by the use of eight Vickers Vicking amphibians. Six of these worked in Manitoba where over 940 hr. of flying was done for fire protection. These ships are large enough so that they can carry fire fighting forces as well as locate the fires. In the case of small fires discovered before they get underway the fire ranger and the crew of the plane put out the fire. If the fire had gained headway the plane flew back to the base for men, pumps, hose and other fire fighting apparatus.

The photographic work covered some 40,000 sq. mi. and required 450 hr. of flying. Canada with vast wildernesses and large areas dotted with lakes is particularly adapted for aerial mapping. Much of the work done however is in the far north where the sunlight hours are short and there is considerable rain. Much of the work is done in country which is practically unexplored and special methods have been devised of covering large areas with comparatively little flying.

Until 1923 there was no regular airplane factory in Canada. During 1923 Canadian Vickers Ltd. obtained a contract for eight Vickers Vicking amphibians, during 1924 the firm built an experimental flying boat for forest patrol work which has proved very successful and has been recently fitted with a Wright Whirlwind engine. They also constructed and remodeled several Avros.

A statistical comparison of 1923 with 1924 shows that in 1923 there were 69 licensed aircraft and 44 pilots and pilot-air engineers as against only 24 aircraft and 31 pilots in the following year. The amount of flying however goes up from 2,830 hr. in 1923 to 4,389 hr. in 1924 and the number of passengers carried goes up from 5,324 to 9090. The number of air engineers went down from 186 to 170. These figures are of great interest as showing the increased efficiency of modern equipment and better organization.

Chinese Aviation

The following interesting information has been received from G. W. Northridge, chief pilot for the Chinese government for the last five years, who has just returned from China.

China has today a foundation for its aviation which could be made into what might prove the salvation of China's endless effort to unite. Were it not for the unfortunate attitude of the foreign powers in enforcing the arms embargo, China would unquestionably be in a more settled condition today. It is impossible for the central government, the Peking government, to hold its authority over the different "tuchuns" or governors of the many Chinese provinces if it, as the government, is unable to secure any weapons of war superior to those held by the different armies scattered throughout the country. I was told not long ago by a military officer high up in our government service, who had studied conditions carefully in China, that were properly equipped fighting and bombing machines and a small quantity of war equipment allowed to be sold to the Peking government, that China would be completely united in a couple of months and stay so.

China has the pilots, men of unusual good ability far superior to the Japanese. The record of training which takes in acrobatics, work on twin-engine machines, and night flying, has been carried on in China with a smaller percentage of casualties or crashes than that of any other country in the world. Two reasons make up this excellent record. The first is that the Chinese are cool, confident, and have little or no imagination, and the second, that the training has purposely been given to cover a great many hours before going solo.

The progress made by the Chinese pilots and mechanics cannot be too highly praised when one knows the difficulties under which they are forced to work, through the incompetency of what may be termed their Air Board. Due primarily I believe, to the "squeeze system" which will darken China's possible bright out-look for years to come, there is continually a lack of finances which leads to a shortage of gasoline, the use of poor oil, strikes of the mechanics, (here China goes one better than we do, as even the army strikes when too far behind in salary) and the buying of poor flying material in general. With an instructional program so often interrupted for periods ranging from a week to a month, great harm results in the advancement of the pilots' training. Unfortunately, the heads of the Aeronautical Department of the Chinese government have often been men of political importance whose knowledge of aviation has been very limited if any, and their policies have also tended to set back progress to a large degree. Chinese aviation is fortunate in having a man, Gen. Y. Lee who is really working for the development of aviation whose principles and experience fit him far above any of the others for the highest position. Sad to say, politics over there as here, interfere with the right man being placed in the right position.

One of the great difficulties encountered in our training of the Chinese was due to the Department's assumption that the more pilots turned out, the more progress made. The number of pilots which make up an organization is governed by the number of serviceable machines, and when the ratio is increased in the wrong direction, the entire flying personnel decreases greatly in efficiency. Some day perhaps, the Chinese will see light on this question, and cut the number of their pilots in half.

There are two separate units in northern China the Mukden division with principally Brigets and Avros, and the Peking division with Avros, twin-engine Vickers Vimys, and a contraption called a VIM, which any foreign firm ought to have been ashamed to give away, let alone sell. It was an odd set-up during the last war between Wu Pei Fu and Chang Tso-lin. One side had only a few fighting machines, poorly equipped and the other, no fighting machines at all but forty twin-engine Vimys fixed up as bombers. What an opportunity Wu Pei Fu with these machines had to cut communications on the single railroad over which all his opponent's supplies had to come. There were no machine guns back of the lines to fire on any low flying machines. Opportunity was there, but not only did Feng, the Christian general, double-cross him but I am afraid, others also. None of these beautiful bombing machines accomplished any really useful work during the war, though there were over a couple of dozen at the front ready for use, and pilots to fly them.

Commercial aviation has been pretty much a failure. The Chinese people do not seem to have the slightest desire to even go up once as an experience, let alone using a transportation service. The government in connection with the American Express Company ran an airplane sight-seeing service to the Great Wall, Ming Tombs, Forbidden City, and other places of interest, all of which could be covered by plane in a couple of hours as against three days any other way, at a charge of only twenty dollars, and also during the summer, a service to and from Peitaiho, a summer resort cross-country two hundred miles from Peking, though twelve hours on the railroad, also at the small cost of twenty dollars per person. Yet these unusual opportunities were not used to a large extent, and then entirely by foreigners. A service from Peking to Shanghai planned to be started four years ago only went as far as buying airdromes along the route at a large financial expenditure, and starting a semi-weekly service between Peking and Tientsin, a very small part of the original plan.

So aviation in China is much like its railroads, retarded in its advancement by graft and poor management among most of the big people "top-side" in control.

Deruluft Statistics

During the month of May, the Deruluft line from Konigsberg to Moscow made 52 trips carrying 67 passengers, 1008 lb. of mail and 8,045 lb. of freight. This means that this line delivered approximately 375,000 ton-miles during the month. The average performance per trip works out as: 745 mi., 1.29 passengers, 1547 lb. of freight, and 194 lb. of mail. If this load is all paid for, this airline should be earning its way.

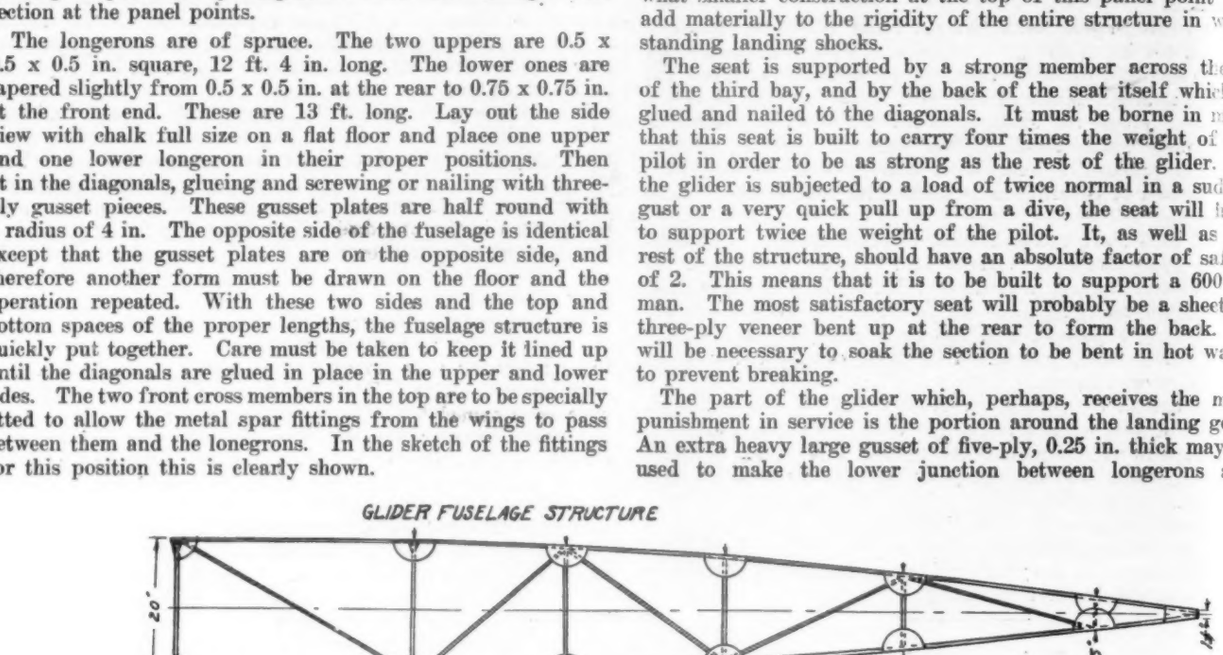
LIGHT PLANES AND GLIDERS

Edited by Edmund T. Allen

The Construction of a Simple Glider—II

The fuselage of the M.I.T. glider is very simple to construct. It consists of four longerons with Warren trussed sides braced together with trussing top and bottom. Torsional bracing is provided by diagonals across the fuselage cross section at the panel points.

The longerons are of spruce. The two uppers are 0.5 x 0.5 x 0.5 in. square, 12 ft. 4 in. long. The lower ones are tapered slightly from 0.5 x 0.5 in. at the rear to 0.75 x 0.75 in. at the front end. These are 13 ft. long. Lay out the side view with chalk full size on a flat floor and place one upper and one lower longeron in their proper positions. Then fit in the diagonals, glueing and screwing or nailing with three-ply gusset pieces. These gusset plates are half round with a radius of 4 in. The opposite side of the fuselage is identical except that the gusset plates are on the opposite side, and therefore another form must be drawn on the floor and the operation repeated. With these two sides and the top and bottom spaces of the proper lengths, the fuselage structure is quickly put together. Care must be taken to keep it lined up until the diagonals are glued in place in the upper and lower sides. The two front cross members in the top are to be specially fitted to allow the metal spar fittings from the wings to pass between them and the lonegrons. In the sketch of the fittings for this position this is clearly shown.



Torsional diagonals cross the fuselage at every panel point from the right upper to the left lower longerons or *vice versa*. They should be double gussetted at the ends. They can be replaced if desired by two tension members which can be made much smaller. But it is doubtful if there will be much saving in weight. In the pilot's seat bay, the back of the seat will serve as an additional torsion bracing. All of these members merely serve as bulkheads to keep the cross sections rectangular, and they thus prevent twisting of the fuselage which can only result when the cross sections become displaced from their true form.

The two front diagonals of the fuselage support the rudder bar. They can be put in now if they were not included in the former operation. In the section just ahead of the axle, a bulkhead must be provided which will not be in the way of the pilot's legs. For this purpose a double plywood bulkhead is used around the lower corners and the lower side and extending twelve inches up the sides. A similar but somewhat smaller construction at the top of this panel point will add materially to the rigidity of the entire structure in withstanding landing shocks.

The seat is supported by a strong member across the V of the third bay, and by the back of the seat itself which is glued and nailed to the diagonals. It must be borne in mind that this seat is built to carry four times the weight of the pilot in order to be as strong as the rest of the glider. If the glider is subjected to a load of twice normal in a sudden gust or a very quick pull up from a dive, the seat will have to support twice the weight of the pilot. It, as well as the rest of the structure, should have an absolute factor of safety of 2. This means that it is to be built to support a 600 lb. man. The most satisfactory seat will probably be a sheet of three-ply veneer bent up at the rear to form the back. It will be necessary to soak the section to be bent in hot water to prevent breaking.

The part of the glider which, perhaps, receives the most punishment in service is the portion around the landing gear. An extra heavy large gusset of five-ply, 0.25 in. thick may be used to make the lower junction between longerons and diagonals, and a slot cut in it, as shown in the print, wide enough to receive the axle and long enough to allow three inches movement of the axle. It was found on the M.I.T. glider that the edges of this slot had to be protected with metal. This entire portion of the fuselage should receive special attention for rigidity and strength. The diagonal up to the front spar was made of ash 0.875 x 0.875 in. to withstand heavy landing loads.

The tail skid which was eventually found satisfactory was made of a piece of ash, hinged at the tail post and wrapped with two strands of 0.5 in. shock-absorber cord at the top. The wheel gear consisted of a 1 in. x 0.03125 in. steel tube axle which was slipped through the slots prepared for the

purpose, and bound to the lower longerons with 0.5 in. shock-absorber cord. The wheels were two standard 20 in. x 2 in. wood rims and tires with special wide hubs made up to fit a 1 in. axle and take the spokes on two rings 4 in. apart. This makes a gear that will stand some side load in addition to the direct upward load of landing.

The tail surfaces were quite a problem on the first glider of this type which was built. On that machine the rudder was inadequate and was rebuilt with larger area and higher aspect ratio. It will require some care and attention to torsion to build these surfaces stiff. A Warren truss of 0.1875 x 0.5 in. members on both sides will with a stiff trailing edge give the desired result. The surfaces are designed to withstand a load of 10 lb./sq. ft. Control horns are often the weakest point in the structure of control surfaces unless they are carefully secured to the surface.

The spars of the stabilizer, elevators, rudder, and fin are 0.375 in. x 1.500 in. spruce. The ribs, 0.1875 x 0.125 in. are nailed and glued across the top and bottom of the stabilizer spars and bent down to a 0.1875 x 0.500 in. leading edge member. At the stabilizer tips a heavier spruce piece is placed to take compression and the fittings for front and rear brace wires to the tail post above and below the fuselage. The tail post is the rear spar of the fin and extends below the lower longerons to the tail skid fiting. To this tail post and to the rear spar of the stabilizer are bolted the hinges for rudder and elevators.

Rudder and elevators are made similar in construction, with 0.375 in. x 1.500 in. leading edge and 0.1875 x 0.500 in. trailing edge. The ribs are set into the leading edge and held apart by a spacer-runner half way out to the trailing edge. The diagonal members for torsional stiffness are also set into the leading edge.

Metal fittings required on the fuselage consist of six hinges for control surfaces, three U-bolts for holding the stabilizer to the longerons, control horns, tail skid hinge, wire pulls for stabilizer brace wires, two aileron control wire pulleys and one elevator control wire pulley, and all control wire attachments. Since all of these are simple to design and construct and follow conventional practice, the details will not be given here. Piano wire is satisfactory for stabilizer bracing.

A novel control stick was used on this glider. It consists of a hardwood handle about 18 in. long and two screw-eyes locking in each other serving as a universal. The lower screw-eye is screwed into a fuselage cross member in front of the pilot's seat. Aileron wires are attached directly to a fitting on the stick about four inches above the universal, and elevator wires to another fitting just below this. It is necessary to run the top elevator control wire around a pulley in front of the stick and back to the fitting on the stick. The lower elevator wire goes directly to the rear of the control stick. These wires pass under the pilot's seat.

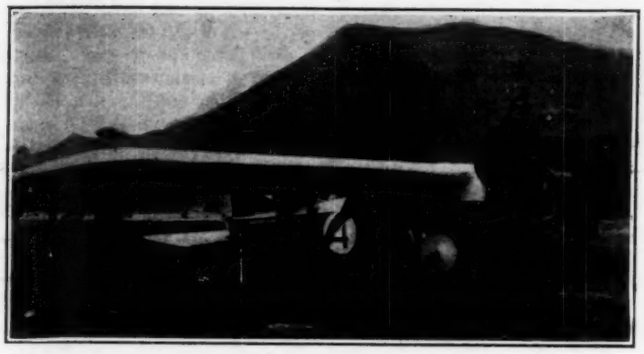
The rudder bar is made of ash bolted in the center to the front cross member of the fuselage which must be braced fore and aft against any undue pressure which the pilot may put upon the rudder bar. The controls should receive special attention to make them easy to operate, free from slack or lost motion, and exceptionally strong and rigid. The control surfaces are covered with the same cloth as the wings and doped in the same way.

When the glider is completed it should be carefully tried out for balance and longitudinal control. It may be necessary to change the angle of the stabilizer by placing blocks under front or rear spar. A speed of 20 mi./hr. will be sufficient to take it off. In a ten mile wind two men can usually tow such a glider at sufficient speed to get off level ground. After the initial hops have been made in this way it can be towed behind a car or taken immediately to a gentle slope where the wind is blowing sufficiently to take off without much forward speed.

This glider may be made great sport especially if there are available hills with smooth slopes and up-winds.

A Real Sailplane

John Domenjoz, an old time French exhibition pilot, has been doing some experimenting on a glider fitted with sails. The glider is an externally braced monoplane of orthodox design and to it he has fitted a jib and mainsail and two movable skid fins placed near the wing tips. The machine has made several flights in tow behind an automobile and has made several short hops on a flat field under its own power. Unfortunately the machine was overturned while on the ground by a strong gust. The machine gains speed on the ground by sailing across the wind as does an ordinary sail boat, the speed thus gained lifting the plane. The pilot believes that by proper handling of the sail and the machine that he can sustain flight without an engine.



Gilliams Photo

Pilot Botsch and the B.A.C. light plane

French Gliding Meet

The fifth annual French gliding meet showed considerable advance over previous meets not only in the number of gliders participating but in the length of the flights and in the number of machines which made commendable records. The French are trying to achieve pure dynamic flight, that is, remaining aloft without using ascending currents such as are found along the crests of hills or where warm air rises. This years meet was held at the military airdrome of Saint-Cyr. The competing gliders were raised to a height of approximately 500 ft. by a captive balloon and then let go so that they might glide to earth. Although the nature of the ground at Saint-Cyr does not absolutely eliminate the possibility of rising currents it is probable that if there were any they were slight in extent, and as the sky was cloudy on the day of the meet there were no vertical currents due to the rise of heated air.

Of the fifty-seven entrants forty-four appeared at the meet and twenty-six made flights of over one minute. The Landes brothers had four machines in the meet all of which far outdistanced their nearest competitors. Theodore Landes remained in the air for 9 min. 26 sec. and covered a distance of 8,900 ft. in a straight line. The point at which he landed was on a higher piece of ground and actually only 335 ft. below the balloon from which he had started. The closest competitors to the Landes machines was the Roucou 11 which stayed in the air for 2 min. 11 sec. Georges Beuchet stayed in the air 2 min. 1 sec.

Pander Cross-Country Flight

One of the regular production light planes, constructed by Pander & Son of Holland, recently made a remarkable flight from Rotterdam to Barcelona. The total flying time was 17 hr. 33 min.

The machine left Rotterdam on May 11 after completing its half hour of trial flights. It flew to Paris in one flight and continued on to Perpignan the same day with intermediate landings at Dijon and Avignon. The machine later flew on to Barcelona, where the pilot, Reparlier, demonstrated the machine to the Spanish authorities. The plane was then disassembled in order to be taken to the exposition in Barcelona.

During this flight the 25 hp. Anzani engine was never run at greater than 1400 r.p.m. This is probably one of the most remarkable flights ever made by a machine of such low power. Another machine of the same model was tested by the French Section Technique at Villacoublay, May 19.

AIRPORTS AND AIRWAYS

Moline, Ill.

The Campbell Airplane Co. has received the first of their new Travel Air planes and E. K. Campbell has been putting it through its paces for the past two weeks. He expresses himself as highly pleased with its performance and states that its flying qualities far exceed any commercial ship he has ever flown. During this time the ship has flown a total of 57 hr. at an actual average speed of 89 mi./hr. Cross country trips have been made to Wichita, Kans., and return twice, Louisville, Ky., and return, Chanute Field and return and many short cross country trips. Everywhere the ship has landed it has created a great deal of favorable comment, and especially among the Army officers at Chanute Field. It is without a doubt the most advanced commercial ship that has ever been constructed around the old reliable OX5 engine, and the Travel Air Mfg. Co., of Wichita, Kans., can justly be proud of their product.

Maj. W. C. McChord, commanding officer of Chanute Field, accompanied by three officers and enlisted men from that post, landed and serviced their four DH's the fore part of last week.

Capt. E. C. Black in command of a squadron of five Martin Bombers from Langley Field stopped over night at the local field. They were on their way to their home station having spent the week at the Norse Centennial Exposition in Minneapolis, Minn. The big ships drew a tremendous throng of visitors at the field as it is the first time a squadron of bombers have landed in this vicinity.

There are now a total of ten planes at the local field, with hangar space for all and prospects are very bright for several additional ships and pilots before the season is over. There are several students taking instruction at the present time and nearly all of them are contemplating purchasing a ship as soon as they complete their course.

Sergt. Jack Cope of Chicago is making this field his headquarters this summer and has been giving wing walking exhibitions and making parachute jumps at the field every Sunday in addition to filling several additional dates during the week in surrounding towns. Contracts are coming in fast and every indication points to a banner year in this line of work as well.

Russian Civil Air Statistics

The following routes were operated in Russia during the year 1924, the operating concern is given in parentheses:

Moscow-Konigsberg (Deruluft)
Moscow-Nijni-Novgorod-Kazan (Dobroliot)
Tashkent-Alma-Ata (Dobroliot)
Khiva-Bokhara (Dobroliot)
Tiflis-Baku (Zakavia)
Kharkov-Odessa (Ukrvozdukhput)
Kharkov-Kiev (Ukrvozdukhput)

The following table gives the principal data for these companies for the year 1924.

Company	*Flights*	*Passengers*	*Freight*	*Mileage*
Deruluft	235	653	69,510 lb.	174,613
Dobroliot	204	456	11,237 "	54,064
Zakavia	308	997	18,722 "	23,827
Ukrvozdukhput	118	347	1,881 "	34,592

Aerial Sales Force

A practical step has been taken by the Alexander Film Co. of Denver toward establishing a flying sales force. The company's initial plane, known as the "Progress," has lately finished a tour in the central states on a sales promotional mission. On this trip the ship was piloted by J. A. McInaney, assistant sales manager of the company.

This company already has, at its headquarters, requests from its salesmen for twenty-nine planes. These planes will be in use just as soon as they can be produced by the factory and the men buying them can be trained to be their own pilots. Forty-four of the company's salesmen have expressed their desire to become trained pilots and use their own machines in selling. The plan not only includes the use of airplanes by salesmen, but the salesmen will also sell the idea of flying, and sell planes to those interested. It has been shown in actual practice that a salesman can save one week's time per month by using an airplane on his routes.

In efficiency and economy, the airplane has already shown superiority over surface travel. The flagship "Progress," mentioned above, recently made a trip from Marshall, Mo., to Denver, and return, at a fuel cost of $49.00. The distance covered was 1470 mi. and the plane carried two people. This makes a cost of three and one-third cents a mile, or one and two-thirds cents per passenger mile, and the average speed for the trip was 83 mi./hr. This furnishes a fair basis for comparison with automobile and railroad travel, as the trip was made under ordinary conditions and through the usual variety of wind and weather.

The airport at Anderson, Indiana

Detroit, Mich.

By Virgil Simmons

Maj. L. B. Lent, president of International Airways Co., and formerly general superintendent of Air Mail, Eastern Division, recently announced the early opening of the service, of four round trips per day, between Cleveland and Detroit. He produced in a very interesting and convincing manner, before the Flying Club's Thursday lunch, the basic reasons for his firm faith in Airways operation, particularly between points of large population, as his company plans to do.

Recent local newspaper publicity regarding the formation of companies to build or operate aircraft carried such unnecessary exaggeration and ambiguous mis-information that I feel helpful criticism might be of considerable benefit. Everyone realizes the detrimental results surely to follow the misstatement of desired information both in the production and operation of aircraft. My esteemed friend and fellow-correspondent, Cy Caldwell, has already made direct reference to this undesirable practice. The practical philosophy of actualism should be the motto of those who realize the scientific problems yet to be solved as well as the wonderful future of flying. Naturally we refer to those organizations whose plans on paper are indeed very large, the carrrying out of which, however, rests with obsolete equipment and inadequately trained personnel.

This brings to mind the statement recently made by Howard Coffin, president of the National Airways Co., that the company was prepared to lose a half million dollars during the first year's operation. By the end of which time sufficient lessons will have been learned and permanent business secured to show some figures on the opposite side of the ledger

The Ford Airway ships leave Dearborn at noon each day, proceed by way of Bryan, Ohio, in order to follow the Transcontinental Air Mail Route, stopping in Chicago for forty-five minutes, and returning to the Ford Airport at six o'clock. Henry Ford is apparently determined to find out exactly what these ships will do and what it will cost to do it.

Paul Strasburg is certainly doing his share in promoting the gospel of aviation, he has had Mayor Smith up a number of times over the city, and is largely responsible for the acquisition of Waterworks Park Bay for a municipal seaplane base, pending the completion of the new Municipal Airport, east of Detroit Edison.

It has been decided to name the 200 acre flying field at John R and 16 Mile Road, on which the writer has a season's lease, Northwood Field, which will be open to any pilot for private or commercial operation. Eastwood Field at Gratiot and 8 Mile Road, where a large class of students are completing their courses, is open to private operators only.

Detroit took another forward stride as the center of the nation's aircraft industry recently when the Board of Water Commissioners offered the Mayor's Aviation committee a landing and mooring basin for seaplanes at the foot of Waterworks Park. Detroit now has a seaplane landing field within fifteen minutes of the downtown section; the mooring basin is superior to any other in the country in this respect.

* * *

In petitioning the Board of Water Commissioners for use of the harbor at the foot of Waterworks Park the Mayor's Aviation committee said:

"The Aviation Committee recently appointed by the Mayor to supervise the construction of municipal airports and landing fields has given serious consideration to the question of establishing a base for seaplanes which can be used immediately.

"The seaplane, or flying boat, is increasing in popularity and at the present time there are four seaplane owners operating in Detroit. You will also recall that for two years the Aeromarine Airways Co., Inc., operated a line of flying boats between Detroit and Cleveland, making two round trips each day. Other flying boat operators are ready to enter Detroit when facilities are provided.

"In order to take care of the boats already here and provide for those which will visit Detroit, the Mayors' Aviation Committee respectfully requests your Honorable Body to consider making available a strip of water approximately 90 ft. wide, lying at the foot of Waterworks Park and running parallel to the Waterworks Coaling Canal on the down stream side of said canal.

"The harbor suggested will provide a splendid place for mooring flying boats; runways and moorings are already in. Repair service, gasoline and oil stations are now available.

"This is the only harbor so protected from wind, waves and current which is close to downtown Detroit and which can be had without cost to the city.

"We earnestly urge that you give this request your favorable consideration. We believe that it will do much to encourage the use of seaplanes in particular and the development of aviation in general.

"Activities which have become public within the last two months have directed the attention of the entire country to Detroit as the center of the aircraft industry. We feel that this industry will eventually be invaluable to Detroit and are convinced that everything possible should be done at this time to stimulate and encourage flying."

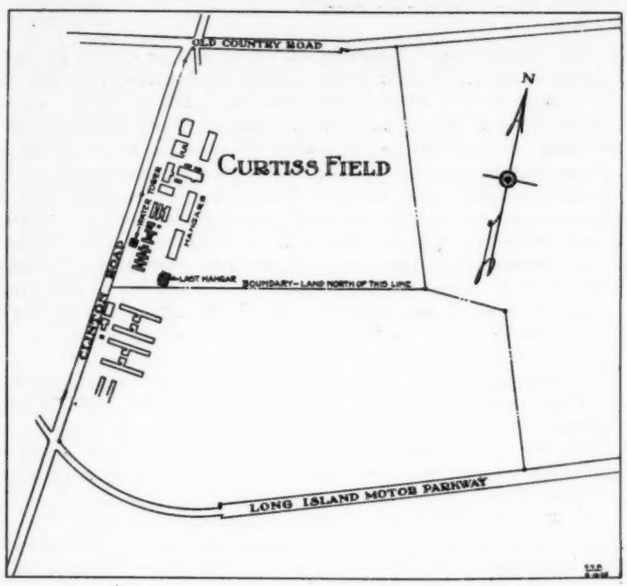
The Board of Water Commissioners, realizing the importance of encouraging aviation in general and the development of the seaplane in particular, granted seaplanes the right to use one half of the bay instead of only 90 ft. as had been originally requested.

In commenting upon the new mooring basin the Mayor's Aviation Committee made the following statement:

"It will be sometime before our municipal flying is completed. Upon its completion a new water base will possibly be established there. However, the present facilities afforded by the Water Board's action are adequate."

Barranquilla-Girardot

The Compania Colombo-Alemana de Transportes Aereos, Scadta, has been granted a subsidy of $65,000 for the establishment of a twice-a-week service between Barranquilla and Girardot, accommodating eight passengers each trip. The Government has also contracted to pay a bonus of $5,000 for the establishment of air-mail service between Puerto Wilches, on the Magdalena River, and Bucaramanga, and $10,000 for air-mail service between Magangue, or some other point on the Magdalena, to Cali, on the Cauca River.



Curtiss Field, Mineola, L. I., N. Y., showing the new restricted area. The part south of the line shown is full of stakes

Curious Escape

When a strut gave way in his airplane as he was 400 ft. over Perth Amboy May 19, John J. Yellen, 25 years old, an electrical contractor, managed to keep it under control until within 100 ft. of the Barber Asphalt Co. Then he leaped out of the cockpit and fell, feet first, into a bog. Rescuers had to dig him out, for he was buried to the waist. His injuries were only superficial. The airplane landed in a corn field, three miles from where Yellen leaped.

The plane, purchased by Yellen several months ago, was a total wreck when farmers found it. Yellen will remain in bed a day or two to recover from shock.

Aerial Burial

From the cockpit of a plane soaring above Lookout Mountain near Golden, Col., and with his widow watching, the ashes of Walter Breithut, soldier of the World War, who died May 14 at Fitzsimons General Hospital, were cast to the four winds to mingle with the dust of the pine clad hillsides.

Sunday, May 24, 1925, with Capt. M. G. Robinson, piloting the plane, and Lieut. Lewis W. Goss, both of the Colorado National Guard, the remains were flown from Denver Col., to the top of Lookout Mountain and exactly at 12 o'clock noon the aerial burial took place.

Scattering the ashes of Breithut was done in fulfillment of his dying request. Lookout was his favorite retreat when he was well enough to leave his bed and enjoy a few hours in the open. Planes flying above Fitzsimons Hospital from both Lowry Field where the 45th Division Air Service of the Colorado National Guard is stationed, and Don Hogan Airdrome where a number of civilian fliers have planes, gave him the thrills that broke the monotony of his dying moments. So from a plane he asked to be buried, and he chose the silent recesses of the mountains for his grave.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Army Radio Instruction

By Robert R. Aurand

The nation-wide popularity of radio, coupled with its incalculable practical advantages, opens to scientific research a new world as patent for development as the Sahara. That numerous civilian institutions of learning have incorporated the study of this fascinating science in their curricula is more or less general knowledge, yet the layman, and even a majority of craftsmen, are ignorant of a government established school where intensive instruction is given in radio subjects. The development of the airplane and its increasing application to military as well as civil use having created a need of specialists in aerial communication, the Air Service established its own school where, under modern methods of instruction, such training as is directly applicable to Air Service needs is given the students.

The Communications Department of the Air Service Technical School at Chanute Field, Rantoul, Ill., 1st Lieut. Lawrence P. Hickey, Air Service, Director, with its corps of skilled instructors, has graduated since Jan. 1, 1923, 21 officers and 80 enlisted men of the Army Air Service, and 7 officers of the Air Service Reserve Corps. While there are separate courses for the officers and enlisted men, both require a high degree of intelligence, with mechanical inclinations. Previous experience or interest in radio work, while not a prerequsite, is a most desirable qualification.

The course for commissioned students extends over a period of 36 weeks, the first 24 of which are assigned to essential theoretical radio subjects and the balance to the practical installation, repair and operation of such equipment as is used by the Air Service.

There are two distinct subdivisions in the course for enlisted students, the divergent stage occurring on the conclusion of sixteen weeks fundamental instruction, each pupil, according to his aptitude, then being designated either a Radio Mechanic or Radio Operator.

The general program familiarizes the student with the International Code, radio laws and regulations, the basic principles of vacuum tube circuits, batteries, motors, generators, etc., with sufficient mathematics to preclude the possibility of failure to grasp the underlying problems peculiarly pertinent to radio.

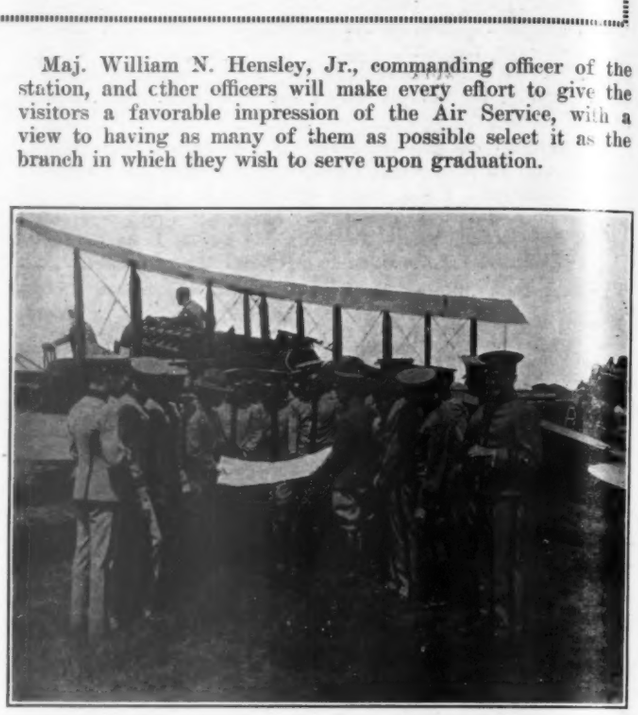
The specialized Radio Mechanics course includes instruction in the maintenance and installation of radio apparatus, together with the necessary air work in connection with the testing and operation of same. The Radio Operators, of course, are concentrated on the transmission and reception of messages. In addition, they are taught to properly maintain and operate such sets as are designed for ground use. The duration of the enlisted course is 28 weeks and the graduates are practically competent to perform their assigned duties.

Cadets Flying

About eighty West Point cadets, one-half of next year's graduating class of the United States Military Academy, arrived at Mitchel Field, Mineola, L. I., June 15: to receive five days' training in aviation and to study the workings of the Army Air Service. When they depart on Friday the remaining half of the class will arrive for a similar course of instruction.

Each cadet is scheduled to make several flights and there will be daily exhibitions of flying and parachute jumping by the officers and men attached to the station. The regular complement of planes at the station has been augmented for the visit of the cadets by three pursuit planes from Selfridge Field, Mich., in command of Lieut. Frank Hunter.

Maj. William N. Hensley, Jr., commanding officer of the station, and other officers will make every effort to give the visitors a favorable impression of the Air Service, with a view to having as many of them as possible select it as the branch in which they wish to serve upon graduation.



Wide World Photo

Major Hensley pointing out the features on an aerial map to a group of cadets at Mitchel Fiela

The Passing of the DeHavilands

The days of the DH4B are numbered. The old reliable plane, the standby of the Army Air Service since the war, is about to step aside to make room for its successor, the Douglas O2, as the standard observation type the *Air Service News Letter* reports. The selection of this ship, built by the manufacturers of the famous World Cruisers, was made by a board of seven Air Service officers having pertinent knowledge of the requirements of the type.

Eleven different types of airplanes participated in this competition. Each airplane was subjected to regular standard performance test by the Engineering Division at McCook Field (provided the performance was not already known) and then flown as many times as possible by each member of the competition board acting first as pilot and then as observer to properly ascertain its behavior and suitability in all maneuvers and conditions of flight. Further to compare the relative merits of the various competing types. comparison flights were made for speed, climb and maneuverability whenever possible. All flights were made with full military load of 1615 lb. as taken from the latest prescribed list for observation airplanes. This load included the armament installation, equipment, camera, radio, crew and 91 gal. of fuel. The flight test data were supplemented by detailed reports on the structural details and design of the airplane, the general arrangement and installation of armament, equipment and power plant, and the facility of maintenance and production.

From the results obtained, it was very evident that the Douglas airplane proved without doubt the logical successor to the DH4B. In addition to simplicity of design, rugged construction and excellent accessibility, it possessed exceptional safety features, perfect balance with or without load, ample baggage space, very good performance and flying qualities especially desirable for observation and attack training and cross-country service.

Simplicity predominates throughout the Douglas sample design which follows a standard type of construction, unusually well built and very accessible—commendable features from standpoints of production and maintenance. The design involves a single bay wire-braced biplane construction with conventional wood and fabric wings of Clark "Y" section, conventional welded tube fuselage of chrome-molybdenum steel and wide-tread axleless chassis. The easily rigged cellule utilizing upper and lower wings of equal span and chord consists of four symmetrical panels externally braced by single streamline wires and two interplane struts at their extremities. Four short cabane struts connect the upper panels with the fuselage. There is no stagger or center section. The upper panels are joined to each other at the center whereas the lower ones are hinged to short projecting stubs of steel tube construction welded integral with the fuselage structure. All four panels carry unbalanced ailerons inserted in the outer trailing edges.

The fuselage is a wire trussed tubular steel structure of rectangular shape measuring 2 ft. 9 in. wide by 4 ft. 6 in. deep at its maximum cross section. It is well arranged and incorporates several structural features such as the detachable all-metal engine mount which permits interchangeability of power plants, the asbestos-faced aluminum firewall at which the detachment is made, and the well located cockpits which provide maximum visibility for both pilot and observer. Aluminum cowling in conveniently removable sections supported by channel-section duralumin superstructure gives ready access to all parts of the power plant. The tail portion supports a set of conventional control surfaces of the unbalanced type having a detachable fin and a wire-braced stabilizer adjustable in flight through a device incorporated in the tail post. A tubular tail skid of the swivel type is used.

Extending under the lower wing well out from the fuselage are two 32 in. by 6 in. pneumatic tired straight-side wheels carried on a wide tread axleless landing gear of steel construction. The landing gear is composed of two tripod chassis hinged at the center of the fuselage and lower wing butts, the outer or shock-absorbing members which extend from the wing being detachable to facilitate rewinding of the cord.

Disposition of fuel is especially good in that it assures extraordinary safety to personnel in event of crash by carrying the main supply well away from the fuselage in two droppable 60 gal. tanks placed in the lower wing panels near their points of attachment. The main supply is augmented by a 10 gal. gravity tank placed in upper right wing panel and a 40 gal. auxiliary tank in the fuselage, making a total of 170 gal. capacity which is sufficient for a cruising range of approximately 950 mi.

The power plant with Liberty installation comprises a standard engine equipped with Zenith carburetors, gear type fuel pump, 12-volt Delco ignition and a 10 ft. detachable blade aluminum alloy propeller. Fuel is supplied to the carburetors by means of a C-5 pump driven directly from the engine and provided with a B-1 pressure relief valve. A hand pump is provided for emergency. Oil is carried in a 13.5 gal. tank suspended by straps at rear of engine. For cooling a closed type water system is provided, utilizing a 9 in. core radiator mounted inside the cowling under the engine. Temperature is regulated by means of radial shutters of rather complicated design controlled from the cockpit.

The airplane as equipped for observation purposes provides for the installation of one 0.30 cal. or one 0.50 cal. synchronized gun forward and two flexibly mounted Lewis guns on rear ring mount. The cockpits are fitted with dual controls and adjustable seats with provision for camera, radio and other observation equipment.

In the standard performance tests conducted at the Engineering Division, the Douglas XO2 with Liberty engine attained a high speed of 137.2 mi./hr. at ground and a service ceiling of 16,900 ft. An outstanding characteristic of this airplane is the perfectly-at-home feeling experienced by different pilots who have flown it. The fine flying qualities coupled with excellent visibility and ample baggage capacity render it particularly adaptable for both observation and airway service.

Army Air Orders

Resignation of Sec. Lt. Bryan Maxwell Jacobs, A.S., accepted.

First Lts. James C. Clark and Junius A. Smith, A.S., Brooks Field, to Kelly Field.

First Lt. George H. Bardsley, A.S., (Coast Art. Corps), Brooks Field, to Sec. Div., Fort Sam Houston.

Transfer of Sec. Lt. John H. Claybrook, jr., A.S., Kelly Field, to Cav., Fort Brown, is announced.

First Lt. James H. Doolittle, A.S., Mass. Inst. Tech., Cambridge, to McCook Field.

Sec. Lt. Patrick W. Timberlake, Field Art., Fort Bragg, detailed to A.S., Brooks Field.

Maj. Clinton W. Howard, A.S., Fairfield, to San Francisco, sailing on transport Sept. 3 for Philippine Islands.

Sec. Lt. George Almond Ford, A.S., Kelly Field, transferred to Coast Art. Corps, Fort Monroe.

First Lt. James L. Grisham, A.S., Langley Field, to Fairfield.

First Sgt. Edward Hellene, A.S., Wilbur Wright Field, retired.

Sec. Lt. John L. Hitchings, A.S., Kelly Field, to Brooks Field.

Capt. Dudley B. Howard, A.S., Brooks Field, to Kelly Field.

Crews for Hawaiian Flight

In response to a request from the Navy Department, the Commander Air Squadrons, Scouting Fleet, has nominated four officers to make the flight from San Diego, Calif., to Hawaii in the PN9 planes this summer. From these nominations will be selected the officer personnel for the two PN9 planes to be used in that flight. Probably two officers will be chosen.

Comdr. John Rodgers, now commanding the aircraft tender U.S.S. Wright. Home address, Havre de Grace, Md.

Lieut. Allan P. Snody, aide on staff of commander, Air Squadrons Scouting Fleet. 19 Radford Place, Yonkers, N. Y.

Lieut. Byron James Connell, Scouting Plane Squadron One, Scouting Fleet. 14 Cable Place Pittsburgh.

Lieut. Arthur Gavin, Scouting Plane Squadron One, Scouting Fleet, 1119 28th St., San Diego, Calif.

The Commander of the Aircraft Squadrons, Battle Fleet has been requested to make nominations for the officer personnel of the Boeing plane which will make the San Diego-Hawaii flight with the PN9 planes, but these nominations have not been received at the Navy Department.

From these names the Bureau of Aeronautics will select the officers for this duty and the selection will be then submitted to the Bureau of Navigation for approval.

U. S. NAVAL AVIATION

Naval Air Orders

Ens. Harry T. Smith det. U.S.S. Tennessee to temp. duty Nav. A.S., Pensacola.

Ens. Frank T. Ward det. U.S.S. Stoddert to temp. duty Nav. A.S., Pensacola.

Lt. Byron J. Connell det. Aircraft Sqds., Sctg. Flt., to Aircraft Sqds., Battle Fleet.

Lt. Arthur Gavin det. Aircraft Sqds., Sctg. Flt., to Aircraft Sqds., Battle Flt.

Lt. John B. Kneip to continue duty Insptr. Nav. Aircraft, McCook Field.

Lt. Allan P. Snody det. Aircraft Sqds., Sctg. Flt., to temp. duty Aircraft Sqds., Battle Flt.

Lt. Comdr. Millington B. McComb to duty Com. Off. Nav. A. Sta., Pearl Harbor.

Lt. Comdr. George P. Brown det. Off. in Chg., Nav. Rtg. Sta., San Francisco, to Off. in Chg. Recruiters Trng. Sch., Nav. Train. Sta., San Diego.

Lt. Nicholas A. Brown det. Nav. Yard, N. Y., to Nav. Aircraft Fact., Navy Yard, Phila.

Comdr. John Rodgers det. command U.S.S. Wright to temp. duty Aircraft Sqds., Battle Flt.

Ens. Bradford E. Grow det. U.S.S. McDermot to temp. duty Nav. A. Sta., Pensacola.

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PUBLISHER'S NEWS LETTER

Those who have overlooked the issuing of the later volumes of the Lampert Committee Report are depriving themselves of the best source of aeronautical information that has yet appeared. The testimony taken at the hearings now fills four printed volumes of 3261 pages. No matter what phase of aerial progress one is interested in, some of the pages will be found to contain reading of the greatest interest. Of course most of the testimony deals with the varying viewpoints of governmental aviation but there is enough technical discussion to whet the interest of even the tired slip stick merchant.

* * * *

The first volume was published so promptly that copies were available before Congress adjourned. It did not contain much sensational testimony for the committee had not struck a pay lead of publicity copy. In the second section which appeared late in March the testimony warms to its task and embraces some of the most important statements and documents that were published. Here we see General Patrick unmercifully grilled by the caustic humorist Congressman Reid; to such an extent that the Chief of Air Service appeared at times bewildered. The Secretary of War and Mr. Davis, the Assistant Secretary, were then put on the grill and questioned pointedly. They include in their testimony many of the most valuable documents that were brought forth in the hearings. Mr. Richardson, the investigator of the Committee who conducted an enquiry in Europe, inserts about a hundred pages of statistical matter which gives many facts that have been unavailable hitherto. Then, Secretary Hoover, Mr. Cabot, and Air Service officers were given an opportunity to give their ideas of how the country could be better served in an aeronautical way. The hearings of the Committee held in New York are also in this volume. Mr. Keys of the Curtiss Company gave what is probably the most exhaustive account of the contractual relations of the government in aircraft matters that has ever been printed. Mr. Coffin presents a running account of War Aviation and his ideas of reforms needed. The Navy then cleared for action and presented its views to the extent of a couple of hundred pages. It was in this preliminary Army-Navy skirmish that Major Walsh gave the figures that established the famous sum $433,383,287.21 as the cost of aviation to the government during the past five years.

The report is lumbered up with three or four hundred pages of the private grievances of the irrepressible James V. Martin. Not satisfied with this evidence of inexhaustible uniteresting details he asks for a continuation of the hearings in the next Congress. All we can think of after the prolonged gas attack that the committee endured may be expressed succinctly—R.I.P.—J.V.M.

* * * *

It was not until Part 3 became available this month that the real fireworks could be seen in all their splendor. The newspaper accounts were, of course, fragmentary at best, but now that 1600 printed pages are available for the enlightenment of those who follow American aviation, an estimate can be made of the value of the work of the committee, in making available the finest assortment of cross-talk that has ever appeared in a public document. Of course, General Mitchell takes the center of the lime light and holds it until the end. His attacks and quick responses to every enquiry afford reading that is as fascinating as fiction. The way that General Drum was held up and perforated with shafts of penetrating questions after he had been groomed for the succession to the throne of the Air Service will be a permanent monument to the uninformed General Staff method of directing the aviation policy of the Army. His prepared statement is, however, the most complete exposition of the work of the Army Air Service that has yet been made public. Day after day, the supporters of General Mitchell emitted every form of verbal attacks while the groggy opponents led by some of the older officers of the Navy came to the surface for air and spouted counter attacks. The sheer bitterness of the testimony brought out many facts that turn American Aviation inside out for all the world to enjoy and profit by.

* * * *

The fourth and last volume continues the Mitchell controversy with increased vigor, the high spots being the testimony of Secretary Weeks, Admirals Simms, Fiske and Fullam and others who could spare the time from the battle that was raging before another committee over a Separate Air Force. It may be time, now, to estimate the value of the work of the Committee even though it became so dazzeled by the publicity that it did not get to the point of making a report. Without doubt, the air has been greatly cleared by the opportunity that has been given to everyone who wished to get his opinions into the record. Particularly is this true of the officer witnesses who seemed to revel in the chance to tell about things that were always held back and considered to be of the most confidential character. It has demonstrated one thing clearly and that is that an Aircraft Committee is needed in Congress where all aviation matters of the government can be made public and discussed. If this is not done there will be recurrences of these sensational outpourings periodically, to the ultimate disgust of the public. The committee has done a public service and should be given due credit. Its report can put a capstone on its work that will make aeronautical history if it will be as fearless as it urged others to be.—L.D.G.

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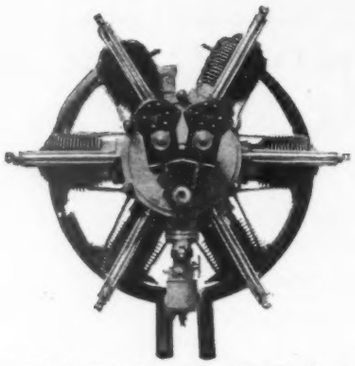

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